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AMERICAN SOCIETY OF CIVIL ENGINEERS.

The Eleventh Annual Convention will be held at Cleveland, Ohio, beginning June 17th, 1879.

Details of programme will be issued to members in a short time.

JOHN BOGART, Secretary.

WE are indebted to the courtesy of the *Iron Age* for valuable material embodied in our report of the proceedings of the Pittsburg meeting of the American Institute of Mining Engineers, and of the incidents and speeches accompanying the presentation to Mr. A. L. HOLLEY.

THE METALLURGICAL MOTHER GOOSE.—I.

This little pig found a market,
This little pig stayed at home;
This little pig had two tenths phosphor,
This little pig had none.
But this little pig said, "I want a basic lining;
Why can't I have some?" *

BESSEMERIZING SULPHIDES.

The letter of Mr. HOWE, published in another column, is, as might be expected from its author, clear and forcible. So far as it criticises certain phrases in our recent article on the subject, we appreciate both its weight and its wit. That it does not alter our general opinion of the process under consideration, is due, perhaps, to the absence of proofs—certainly not to any lack of skill on the part of the advocate. We are content to leave the matter for the present with the frank admission that the proposed method, "if successful"—would be successful; and the further proviso, that success must be understood to include the economical as well as the chemical element.

As to the difference between the precedents cited by us, and the process of HOLLWAY, Mr. HOWE, we think, mistakes our argument. The saving of merely the amount of fuel required for the first fusion of the ores is not so great an advantage that it may not be outweighed by the difficulties which it introduces; and if the pneumatic treatment of sulphides already fused has proved metallurgically difficult or impracticable, there is little reason to expect that the addition of a pneumatic fusion will redeem the method from failure. So far as that feature is concerned, it may be new and patentable, as we frankly admitted; but the fact that pneumatic processes not possessing it have not come into practice, though they have been years before the public, raises a presumption against the whole system, which facts only can overcome. Mr. HOWE'S clever variations on the tune of Hamlet do not meet the case. The fusion of the ore preliminary to deoxidation is not the part of Hamlet in the play at all. It is merely an introduction; and our proposition is, that if the play itself should be damned, a pneumatic prologue would not save it. *

ASA PACKER.

On the night of May 17th, Hon. Asa Packer, President of the Lehigh Valley RR. Co., died at his residence in Philadelphia. He was born at Groton, Conn., December 29th, 1805. In his early life he followed tanning, and afterward farming. At the age of eighteen he arrived at Brooklyn, Pa., almost penniless. Here he bound himself as an apprentice to a carpenter, and worked several years at this trade. He afterward purchased a small piece of land on the Susquehanna, which, by industry and economy, he was enabled to pay for. In 1833, he settled at Mauch Chunk, Pa., which was his real residence until his death. Here he again worked at carpentering for a while; then at boating coal from that place to Philadelphia. After this, he entered into partnership with his brother, and carried on a general merchandise business in addition to boating coal. In 1836, he established a line of canal-boats for carrying coal from Schuylkill Haven to New York, which proved a complete success. On October 31st, 1851, he purchased a large amount of the stock of the Delaware, Lehigh, Schuylkill & Susquehanna Railroad Company, now the Lehigh Valley Railroad Company. On November 27th, 1852, he submitted a proposition, which was accepted, for constructing this railroad from Easton to Mauch Chunk, and to take pay in the stock and bonds of the company. This work was completed September 24th, 1855, but not without strong financial trials. To-day the Lehigh Valley Railroad extends from Perth Amboy at tide-water to the Lakes, having the second largest coal traffic of any road in the United States, besides a large passenger and general freight traffic. At his death, he was reported to own about one third of all the stock and bonds of this company.

In 1841 and 1842, he was a representative to the Pennsylvania Legislature; in 1843, he was appointed Associate Judge, and held that office for five years; he served in Congress from 1853 to 1857; in 1868, he was a candidate for Governor of Pennsylvania, but was defeated.

He established a lasting monument to his memory when he founded the Lehigh University. For this purpose he gave a tract of land at South Bethlehem, upon which he erected commodious and elegant buildings suitable to the purposes of a university. That the tuition may be free, he endowed this institution with $500,000.

THE ANTHRACITE COAL TONNAGE.

From Mr. JOHN H. JONES, former accountant of the Anthracite Board of Control, we have received the following statistics of coal tonnage:

	April, 1879. Tons.	April, 1878. Tons.	Incr'se. Tons.	For year 1879. 4 mo'ths. Tons.	For year 1878. 4 mo'ths. Tons.	Incr'se. Tons.
Philadelphia & Reading RR.	637,474	373,539	263,935	2,007,737	873,594	1,134,143
Lehigh Valley RR.	361,530	230,944	130,586	1,188,414	862,580	325,833
Central RR. of N. J.	333,260	151,158	182,102	1,119,034	510,717	608,317
Delaware, Lack. & W. RR.	266,187	100,774	165,412	1,016,647	537,818	478,829
Delaware & Hud. Canal Co.	182,438	100,241	82,196	764,732	634,009	130,723
Pennsylvania RR.	142,031	102,605	39,427	434,190	303,616	130,574
Pennsylvania Coal Co.	121,301	69,983	51,319	397,847	230,432	167,415
N. Y., L. E. & W. RR. (Hillside Coal and Iron Co.)	27,049	18,631	8,417	99,579	76,133	23,446
Total	2,071,270	1,147,875	923,394	7,028,180	4,028,899	2,999,280

The stock of coal on hand at tide-water shipping points, April 30th, 1879, was 638,486 tons; on March 31st, 630,614 tons; increase, 7872 tons.

It will be observed that the tonnage for the first third of the year was but 7,028,180 tons, or at the rate of a little over 21,000,000 tons per annum. The production in April was 2,071,270, or at the rate of over 24,000,000. Without strikes or accidents, this rate can be exceeded, during the six months beginning with May; but an average of 500,000 tons per week for the period would be extraordinary work, and would certainly call for an amount of dead-work at the mines that the present prices of coal will not probably permit. This would give a production equal to

20,000,000 tons at the end of November, and 3,500,000 tons would be very good work for the two remaining months; making a total capacity for the year of 23,500,000 tons, taking the most liberal view of the situation, and making no allowance for extraordinary stoppages from any cause whatever. Should a strike take place, it would occur during the busiest season, for the miners never strike when there is not a good demand. A strike of a month, with its consequent disorganization, would be equivalent to a loss of 2,500,000 tons, which would reduce the production to 21,000,000 tons, or to the estimate, by the most conservative, of the requirements of the country this year. It will be observed, therefore, that the statistical position is favorable to a better condition of affairs in the coal trade this year.

ALEXANDER LYMAN HOLLEY.

Our comments upon the glorious Pittsburg meeting of the Institute of Mining Engineers must give place, this week, to a topic with which is associated the most beautiful and precious of all the memories of that gathering. We refer, as every one of the great company in attendance will at once divine, to the testimonial presented on Thursday evening, at the house of Mr. SHINN, to ALEXANDER L. HOLLEY. We publish elsewhere a report of the proceedings on that occasion, which is, however, far from conveying to the general reader the feeling which made the scene memorable. The happy irony of Mr. SHINN'S remarks, and the exquisite modesty and eloquence of Mr. HOLLEY'S *ex-tempore* reply, together with the circumstance that the whole affair was a complete surprise to nearly all the spectators, as well as to the principal actor, and that the pleasure of all was as great as their surprise, formed a combination of far more thrilling interest than usually surrounds a ceremony of the kind. Moreover, no intelligent observer could fail to realize that the significance of the transaction was greater than the expression of personal esteem in which it originated. It suggested at least the public recognition of an extraordinary career, the successive triumphs of which had deserved a more emphatic celebration than they had hitherto received.

In this view, the present seems to us a fitting opportunity for doing, albeit imperfectly, what we have long had in mind, namely, to present to our readers a sketch of Mr. HOLLEY'S life, combined from such materials as have come to our notice during the years of our personal acquaintance with his works, and, more recently, with himself.

ALEXANDER LYMAN HOLLEY was born in 1832 at Salisbury, Conn. (where the Institute of Mining Engineers enjoyed, at the Amenia meeting in 1877, the charming hospitality of his parents, Gov. and Mrs. HOLLEY). Before his eighteenth year, he learned the machinist's trade, and subsequently graduated, in 1853, from the scientific course of Brown University, having preferred this training to the classical course at Yale, for which he had been prepared. We can not help thinking that the classical beginning has had more to do with his success in life than he would probably suspect. To some such influence should be ascribed the general culture and the literary skill which have made his technical knowledge doubly effective on the minds of men.

After graduation, he was employed in a large locomotive-works at Providence, and for about a year drove one of the locomotives of the concern on the Stonington Railroad. The following passage from his eloquent address at the Washington meeting of the Institute, on "The Inadequate Union of Engineering Science and Art" (Transactions, iv. 194) shows how powerfully he could feel and express the poetry as well as the practice of that position:

> "The thoughtful locomotive-driver is clothed upon, not with the mere machinery of a larger organism, but with all the attributes, except volition, of a power superior to his own. Every faculty is stimulated, and every sense exalted. An unusual sound amid the roaring exhaust and the clattering wheels tells him instantly the place and degree of danger, as would a pain in his own flesh. The consciousness of a certain jarring of the foot-plate, a chattering of a valve-stem, a halt in the exhaust, a peculiar smell of burning, a sudden pounding of the piston, an ominous wheeze of the blast, a hissing of a water-gauge—warning him respectively of a broken spring-hanger, a cutting valve, a slipped eccentric, a hot journal, the priming of the boiler, high water, low water, or failing steam—these sensations, as it were, of his outer body, become so intermingled with the sensations of his inner body, that this wheeled and fire-feeding man feels rather than perceives the varying stresses upon his mighty organism."

Either at this time, or during his subsequent connection with locomotive works at Jersey City, occurred a humorous incident which we have heard Mr. HOLLEY relate, and which is perhaps worth repeating. He made a wager with some of his fellows that he could run a locomotive a mile without fire, water, or steam—the locomotive to be taken empty and cold from the shop, and towed by another engine to a point at some distance on the road, where a level stretch of track favored the experiment. Young HOLLEY rode in solitary state on his cold locomotive to the scene of trial, and, unsuspected by his escort, so arranged matters that during the trip the motion of the drivers and pistons stored the boiler with compressed air! Of course this gave him, by the time the destined point was reached, an accumulation of power, by means of which he ran out his mile and won his wager.

Before 1855, he had published several technical papers, and had contributed not a little to the columns of ZERAH COLBURN'S *Railway Advocate*. In 1856, he bought the paper, and edited it for about a year, when COLBURN resumed his connection with it, HOLLEY retaining half. The hard times of 1857 caused the suspension of the enterprise, and COLBURN and HOLLEY went to Europe to study, in the interest of leading American railroad companies, the features of foreign practice. In 1858, their book on *European Railways* was published. Its circulation was large, and its effect was profound. To it may be attributed the rapid improvement in American permanent way and the introduction and perfection of coal-burning locomotives.

COLBURN returned to Europe to edit the *Engineer*, and HOLLEY engaged actively in professional writing, chiefly in the editorial columns of the New York *Times*. In 1859, he accompanied HENRY J. RAYMOND to Europe as a *Times* correspondent. In this capacity he made the acquaintance of BRUNEL and SCOTT RUSSELL, and thoroughly studied the structure and details of their new marvel, the *Great Eastern*. After a brief interval of editorial work on the *American Railway Review*, he again went to England for the New York *Times* in 1860, to return on the first transatlantic voyage of the *Great Eastern*. His account of the voyage, and his discussion of the problems of marine engineering and of ocean commerce over the signature "Tubal Cain," attracted much admiration, by their striking combination of picturesque description and technical criticism both thorough and bold. It will be remembered that the N. Y. *Times* editorially prophesied, much to the scorn of several professional papers, that screw steamships would soon drive the side-wheelers, even for passengers, from the North Atlantic. It was HOLLEY who made the prophecy; and we need not say that events fulfilled it. Time vindicated the *Times*.

In 1860 appeared HOLLEY'S *Railway Practice*, which immediately took the place of a standard authority. He must have been collecting the materials for this work, during the two preceding years, when he appeared to be wholly occupied with his work as a journalist. His astonishing activity, indeed, eludes our attempts to trace it in detail. We find him superintending experiments in fuel, permanent way, etc., for railway companies, acting as expert in patent cases, and even preparing about a thousand engineering definitions and several hundred illustrations for *Webster's Dictionary* (edition of 1864).

An acquaintance formed through some one of these channels with the late EDWIN A. STEVENS, at the beginning of the war, led to a temporary connection with the "Stevens Battery," and to the sending of Mr. HOLLEY to England in 1862 to investigate ordnance and armor. The ultimate result of these studies was the book on that subject, published in 1865, which was of itself enough to establish the position of its author in the engineering world. It met with immediate appreciation at home and abroad, was translated and republished in France; and although it is now, of course, behind the times, it remains the standard authority for the state of that branch of the military art at the time of its appearance.

The connection of Mr. HOLLEY with the development of the Bessemer process in the United States is the most important part of his career thus far. It was he who negotiated the purchase of the Bessemer American patents in 1864, built the experimental works at Troy and started them in 1865, built the Harrisburg works in 1867 and superintended them until 1869, rebuilt the Troy works, planned the works at North Chicago and Joliet, the superb Edgar Thomson works at Pittsburg, and the Vulcan works at St. Louis. Moreover, it was to his improvements in the mechanical arrangement and details of the Bessemer plant, more than to the contributions of any other one man, that the astonishing development of the process was due. Mr. ROBERT W. HUNT, himself one of the earliest and most eminent of our Bessemer engineers, says in his paper on the History of the Bessemer Manufacture in America (Trans. Am. Inst. of M. E., V., 201):

> "After building the first experimental plant at Troy, Mr. HOLLEY seems to have at once broken loose from the restraints of his foreign experience, and to have been impressed with the capabilities of the new process. The result is, that mainly through his inventions and modifications of the plant we in America are to-day enabled to stand at the head of the world in respect of amount of product."

The example of America has not been without influence abroad. In 1864, the maximum daily product of a pair of five-ton converters in England was 30 tons of steel. We believe it is now perhaps 150 tons per 24 hours there; while in the United States the present average production is 300 tons per 24 hours, and the Edgar Thomson Works have actually surpassed the enormous figure of 9000 tons of steel ingots in one month (the converters not running on Sundays). We quote again from Mr. HUNT'S admirable paper the following summary of Mr. HOLLEY'S contributions to this unparalleled record of progress:

> "The result of his thought gave us the present accepted type of American Bessemer plant. He did away with the English deep pit and raised the vessels so as to get working space under them on the ground floor; he substituted top-supported hydraulic cranes for the more expensive counter-weighted English ones, and put three ingot cranes around the pit instead of two, and thereby obtained greater area of power: he changed the location of the vessel as related to the pit and melting-house; he modified the ladle-crane and worked all the cranes and vessels from a single point; he substituted cupolas for reverberatory furnaces, and last, but by no means least, introduced the intermediate or accumulating ladle which is placed on scales, and thus insures accuracy of operation by rendering possible the weighing of each charge of melted iron, before pouring it into the converter. These points cover the radical features of his innovations. After building such a plant, he began to meet the difficulties of details in manufacture, among the most serious of which was the short dura-

tion of the vessel-bottoms, and the time required to cool off the vessels to a point at which it was possible for workmen to enter and make new bottoms. After many experiments, the result was the Holley vessel-bottom, which, either in its form as patented, or in a modification of it as now used in all American works, has rendered possible, as much as any other one thing, the present immense production."

—to say nothing of his incidental literary work in marine engineering and other departments, which stamped him as a critic of the first order. Any one of these achievements would have entitled him to an honorable professional position. Their union in one man, scarcely arrived at his prime, is almost without parallel.

Mr. HOLLEY was the first editor of *Van Nostrand's Eclectic Engineering Magazine;* but even he could not long carry that burden in addition to his multifarious professional labors. Since 1870, he has been actively engaged as consulting engineer to numerous Bessemer and other steel works, making frequent journeys to Europe, and issuing to his clients periodical reports of great value. His connection with the open-hearth steel-manufacture, and particularly with the introduction of the Pernot furnace and other improvements, which seem likely to effect great progress in that department, is a matter of current history.

As President of the American Institute of Mining Engineers in 1875–6, and first Vice-President of the Society of Civil Engineers in 1876, he made his energy and genius felt in both societies, and contributed no little to the growth of that *entente cordiale* which characterizes their relations. The pages of their transactions, as well as those of various cyclopedias, bear witness to his industry, professional enthusiasm, and literary power. His work as a member and advocate of the U. S. Testing Board will be remembered as specially effective.

We are writing, not eulogy, but history. Yet even history may be pardoned in such a case, for infusing into the words of justice some of the warmth of affection. At the brilliant banquet of the Institute in Pittsburg, the other day, one of the speakers, alluding to the testimonial presented to Mr. HOLLEY the evening before, uttered the feeling of every member of that body, in declaring that the sentiments which had inspired the gift were shared also by those who had not enjoyed the privilege of uniting in such an expression of them. From the verses with which that speech concluded, we quote the final stanzas. Whatever their demerits as poetry, they were offered by the speaker and received by the audience with a feeling that left no doubt of their sincerity and their fitness.

"The Macedonian wept with rage
For other worlds to overcome;
The hero of a nobler age
Has found and claimed them, one by one.

"Realm after realm of fruitful thought
Has hailed our ALEXANDER king;
But crowns of conquest all are naught
To those our loyal hearts would bring!

"For weakness at the victor's feet,
Or reason, may reluctant bend;
But love's surrender is complete,
The utter gift of friend to friend.

"O brother! known in many lands,
And master called in many arts,
Behold, we stretch to you our hands
With nothing in them, save our hearts!" *

THE MAY MEETING OF THE INSTITUTE OF MINING ENGINEERS.

In our attempt to give an early report of the proceedings of the Pittsburg meeting, one or two errors were committed. The communication on the Salisbury Tar-Burning Apparatus was presented by Mr. RAYMOND, not Mr. HOLLEY, as reported; and the subscription banquet took place on Friday, instead of Thursday, night.

The following additional list of members and associates elected was received too late for insertion last week, the supplementary election having taken place on Friday morning:

MEMBERS.

James B. Young, Pittsburg, Pa.
John T. Wilson, Pittsburg, Pa.
John I. Williams, Pittsburg, Pa.
F. Z. Schallenberg, Irwin's Station, Pa.
John D. Sanders, Mine La Motte, Mo.
A. A. Hutchison, Pittsburg, Pa.
Herbert Du Puy, Pittsburg, Pa.
James Laughlin, Jr., Pittsburg, Pa.
Thomas T. Morrell, Johnstown, Pa.
George L. Miller, Latrobe, Pa.
Charles H. Morgan, Jr., Worcester, Mass.
H. F. Mann, Pittsburg, Pa.
William L. Scaife, Pittsburg, Pa.
Henry M. Curry, Pittsburg, Pa.
Henry T. Townsend, Philadelphia.
Walter S. Franklin, Ashland, Md.
F. G. Fricke, Pittsburg, Pa.

ASSOCIATES.

Ed. V. McCandless, Pittsburg, Pa.
George F. Milliken, New York City.

The following is an outline of the proceedings subsequent to the close of the sketch given by us last week: On Friday morning, the last session was held for the reading of papers and the transaction of business. "The Three Hearths at the Cedar Point Furnace" was the subject on which Mr. THOMAS F. WITHERBEE, of Port Henry, N. Y., discoursed. Mr. WILLIAM KENT followed with a description of an apparatus for testing the resistance of metals to repeated shocks, insisting upon and illustrating the importance of making such tests in connection with those made to ascertain the power to resist severe strains, President ECKLEY B. COXE took up the subject of anthracite coal-breaking, and presented a form of tooth which wore out without changing its shape. In discussing the durability of iron rails as compared with those of steel, Mr. W. E. C. COXE, of the Reading Railroad, maintained that there was not a great difference between them, supposing both of the best quality. The proportion Mr. COXE stated as about five to three in favor of steel, in the best specimens. Mr. A. S. MCCREATH, Chemist of the State Geological Survey of Pennsylvania, answered a few questions suggested by his paper on "Phosphorus in Bituminous Coal," which had been previously printed and distributed among the members.

After the secretary had read a paper prepared by Prof. CHARLES E. WAIT, on "Antimony Deposits in Arkansas," communications were presented from the Association of Mining Engineers, of Montreal, and from a large number of prominent residents, inviting the Institute to hold its next meeting in their city. The chairman announced that the invitation had been accepted by the Council, and that the meeting would be held in September next.

After adopting resolutions of thanks to the railroad companies, to the managers of metallurgical and manufacturing works, and to the press, the meeting adjourned.

On Saturday, the members had two excursions at their choice—one, to the oil regions of Butler County; the other, to the Connellsville coke district. The first was made on special trains furnished by various railroad companies, and was participated in by some seventy or eighty persons, including a number of ladies. At Sharpsburg, Messrs. Spang, Chalfant & Co.'s mill was visited; at Saxonburg, the Carbon Black Manufacturing Company's works; then on to Carbon Center, where the oil-wells of Messrs. H. L. Taylor & Co. were inspected. At Foxburg, a substantial dinner was enjoyed; and then a rapid run brought the party back to Pittsburg.

The trip to the coke district was commanded by Mr. JOSEPH D. WEEKS, and included visits to the works of Messrs. Brown & Cochrane, H. C. Frick & Co., and A. A. Hutchinson & Co. At Dunbar Furnace, the Fayette County members gave an elegant entertainment at the residence of Major A. B. DE SAULES, Vice-President of the Furnace Company. Lingering a little too long, the train started without them; but through the kind courtesy of the management of the Baltimore & Ohio Railroad, all arrived safely in Pittsburg about eight o'clock P.M.

Last week, we alluded to a happy surprise to Mr. A. L. HOLLEY. During the brilliant reception at the house of Mr. SHINN, and while the company were at supper on the lawn, a beautiful and costly silver pitcher and salver were placed under cover in the dining-room. At the conclusion of the supper, about eleven o'clock, the doors were opened, and Mr. HOLLEY was ushered in, followed by the guests—the visiting members, the ladies of the party, and many of the local members and the ladies of Pittsburg. The surprise—for surprise it was to all but the donors—unfolded itself after the following pleasant fashion. Mr. SHINN, addressing the assembled company, said:

"Ladies and Gentlemen: Allow me to claim your attention for a few moments. A once prominent railroad official was known to define an engineer as a 'man who knew what he wanted to do and how to do it,' and he added, by way of illustration, that he was an engineer in that sense. The definition is not so wide of the mark as the application. This gentleman was well known as never knowing either what he wanted to do or how to do it. It must, therefore, be evident that a 'mining engineer' is one who wants to mine, and knows how. In this sense I fear that many of us are in the same category with the railroad official referred to. Some of us sport the title of 'civil engineer.' It is presumably a reasonable requirement of all engineers to be civil, yet some of us find even that task difficult. There are yet others who masquerade under the designation of 'mechanical engineers,' and there is one of our number who has imposed upon a too credulous and confiding public with this title and sundry others, to which I will refer, until 'forbearance has ceased to be a virtue,' and it has fallen upon me to expose him before this intelligent audience.

"This gentleman, for such he seems to be, appeared in this vicinity some years ago, and his theme was 'blowing Bessemer steel.' His ambition appeared to be to blow about something, and his greatest desire was to 'blow a heat.' This gentleman was always descanting upon converting things—and people. He made some converts and some converters, but such a failure was he in this direction, that those who came in contact with his converters found themselves consigned to a hotter place than they had ever reached before.

"The most remarkable characteristic of the converts of this gentleman's converters, is that they are always inclined to steel. This gentleman also indulges in the title of 'consulting engineer,' and frequently favors his victims—whom he is pleased to call his clients—with a visit for consultation. This visit results in his finding out all we know, and in return he confidentially tells us all that he don't know, and there is so much of the latter that he seems to doubt whether what he gets from us is a full equivalent. He occasionally goes abroad, to England and the continent, and favors our foreign friends by 'consulting' them in like manner. Anon, he talks of 'basic linings,' as if his ordinary schemes were not base enough; and you have heard him at this very meeting hold forth upon 'economical gas producers,' as if such articles were valuable anywhere outside of Congress and our State legislatures. But his propositions are so plausible, his manner so winning, his countenance so frank and open-hearth like, and his gas so overpowering, that he has admirers who still insist upon doing him honor; and it is because of this that I have sought to place before you the facts in regard to

this gentleman's true characteristics, lest you might be misled into that confidence the burden of which these misguided persons have laid upon me this evening.

"This gentleman's name you perhaps have heard, for it has a habit of getting into print—it is ALEXANDER LYMAN HOLLEY. After all, Mr. Holley's blowing has been for Bessemer, for Siemens, for Tessié du Motay, for any body and every body except Holley, and that victimized few, whose representative I appear here to-night, have resolved that one blow at least shall be struck for ALEXANDER LYMAN HOLLEY.

"Mr. Holley: In behalf of a few of those whose lives you have made a burden by teaching them the pathway to success in making Bessemer steel, and then leaving them to the mercy of the mathematician and the chemist—with their 'analyses' and their 'formulæ;' their moments of 'this' and their units of 'that'—I present you this testimonial, which I find characterized in the official catalogue as a 'pitcher upon a plateau;' which is the 'pitcher,' you can doubtless perceive; which is the 'plateau,' I leave for your patient and careful investigation, believing that, as in other cases which you have undertaken, science will finally 'triumph' and the 'plateau' will be discovered. The catalogue further states that the figures on the pitcher are a symbolical representation of 'Art chasing Nature.' It is an undoubted fact that nature needs chasing, as witness the too plentiful phosphorus in the convenient pig-iron; and as the art of Thomas and Gilchrist has now succeeded in chasing it out, so has your art chased nature out of many of her strong holds and forced her to deliver up her secrets to science.

"In behalf of those whose names are recorded herein, I beg that you will accept this testimonial as but a slight evidence of their appreciation of your great professional ability, your high moral worth, and as an indication of their steadfast friendship."

The gift was uncovered, and after a moment of embarrassed silence Mr. HOLLEY, with tremulous voice, responded as follows:

"Mr. Shinn, I thank you for the kind and elegant manner in which you have presented this lovely gift; it is not only a surprise but an astonishment, so much so that I am utterly unprepared to properly respond.

"My kind friends have intended this delightful presentation as a recognition of my contribution to the development of our Bessemer manufacture. I am disposed to be a modest man, but there is one thing which I certainly do claim to know more intimately than most people, and that is *who* contributed to that somewhat remarkable development and what each one contributed. I am so proud to be recognized as one of the dozen men—here (pointing to Capt. W. R. Jones) is a conspicuous member of that dozen—who in the way of good mechanical engineering on the part of some of us, and good management on the part of others, have put the Bessemer process in the high and successful position which it occupies to-day.

"But, sir, one of the first principles of our profession is to make constructions only upon mature working drawings. This surprise is so complete that I have had no chance to work up drawings and specifications of a suitable response; but that I will endeavor to do when I can more completely express my overwhelming feelings.

"Among us all who are working hard in our noble profession and are keeping the fires of metallurgy aglow, such occasions as this should also kindle a flame of good-fellowship and affection which will burn to the end.

"Burn to the end! Perhaps some of us should think of that, who are burning the candle at both ends. Ah! well, may it so happen to us that when at last this vital spark is oxidized, when this combustible has put on incombustion, when this living fire flutters thin and pale at the lips, some kindly hand may turn us down, not underblown—by all means not overblown—some loving hand may turn us down, that we may perhaps be cast in a better mold."

The money value of the pitcher and salver is perhaps some thirteen hundred dollars; but judging from the tones in which the eloquent and happy acknowledgment was made, it is quite possible that other considerations than those of dollars and cents entered into Mr. HOLLEY's estimate of the value of this superb gift. A card, conveniently secured to the case, was inscribed thus:

"Testimonial of appreciation and regard to ALEXANDER LYMAN HOLLEY, from his friends, W. R. Jones, Morrell, Corning, Shinn, Griswold, Metcalf, Hunt, Wellman, Kennedy, Fritz, Hartman, Park, Lapsley, Teeter, Worthington, Hines, Perry, Fry, D. N. Jones, Marvin, Hamilton, Rickettson, Hemphill, Forsythe, Potter, McCandless, Rinard."

We shall refer to the meeting again next week, our columns being too crowded for further comment now.

THE IRON AND STEEL INSTITUTE.

The annual meeting of the Iron and Steel Institute, held in London during the week ending the 10th inst., must rank as one of the most important meetings in the history of this institution, not only on account of the papers read and the discussions which followed, but also on account of the exceptionally large number of men from all parts of Europe, whose names are eminent in the science and practice of iron and steel metallurgy.

The announcement that papers would be read by such authorities as DANIEL ADAMSON, H. N. MAYNARD, and NATHANIEL BARNABY would always insure a large and distinguished audience; but there was evidently a greater attraction than these names, as was shown by the applause which followed the announcement by the president that success had attended the efforts to dephosphorize Cleveland iron, followed by the reading of papers by Messrs. THOMAS and GILCHRIST on "The Elimination of Phosphorus in the Bessemer Converter;" by EDWARD RILEY on "A Ready Means of Molding Lime and Making Lime or Basic Bricks for Furnaces, Converters, etc.;" and, finally, GEORGE I. SNELUS'S paper on "The Removal of Phosphorus and Sulphur during the Bessemer and Siemens-Martin Processes of Steel Manufacture." As these papers, with the discussions, will be produced *in extenso* in our next two or three issues, it will only be necessary to call attention to their more salient points.

The more detailed results announced bear out the statements made at the Pittsburg meeting of the American Institute of Mining Engineers, namely, that phosphorus may be reduced in the Bessemer vessel from 1·5 per cent to less than ·10 per cent, and the silicon wholly eliminated, by the employment of a basic lining with basic additions.

It is to be hoped that Mr. RILEY'S claim for making bricks with burnt lime and petroleum will work out well in practice; for there will be an infinite advantage in being able to do away with the excessive temperature and prolonged burning necessary for the Thomas Brick. The Riley brick has not yet been submitted to a sufficiently rigid test to determine its staying qualities. The discussion of these papers, which was participated in by SIEMENS, BELL, SMITH of Barrow, SAMUELSON, GREINER, of Seraing, SCHNEIDER of Creusot, and CARNEGIE of Pittsburg, was directed mainly to the question of the life of the lining and the maintenance of the temperature. Private advices inform us that the lining in the two-ton converter has lasted out over 100 blows, and that the eight-ton vessels at Eston are now being worked, the bottoms remaining good for eight blows, whereas the regular work on a ganister bottom is only nine blows.

Mr. RICHARDS, manager of BOLCKOW & VAUGHAN'S, made the important statement that the cost of the lime brick did not exceed that of ganister bricks.

Mr. EDWARD WILLIAMS, the newly-appointed President of the Institute, in his inaugural address, drew attention to the new process in the following terms: "I can not forbear to mention specially the important improvement patented and already brought to some practical success by Messrs. THOMAS and GILCHRIST, for the dephosphorization of ordinary pig-iron, thereby fitting it for use in the manufacture of steel." Mr. WILLIAMS was one of the party invited by Messrs. BOLCKOW, VAUGHAN & CO. to witness some blows, and refers to what he saw in the following terms: "The blowing was in every way successful and the quality of steel produced excellent. The samples examined, several of which were made in our presence, varied in temper from the mildest and softest to the ordinary hardness for rails, any particular sort being produced at will." Mr. WILLIAMS, in conclusion, made the following important announcement: "The Northeastern Railway Company has already ordered a considerable quantity of rails made from Cleveland steel, which will be manufactured under the supervision of their eminent engineer, Mr. HARRISON, whose report will be eagerly looked for, as it will be relied on implicitly." To the *Ironmonger* we are indebted for an early report of the papers and discussions, and the following paragraph from an editorial on the subject of basic linings may well be laid to heart by some of our iron and steel manufacturers and ore miners: "The resulting economy is so material that establishments possessing the right to work this system will be enabled to completely undersell their competitors. This fact literally opens out a new future to many of our iron-ore districts, seeing that the advantages now generally accredited to Cleveland are really possessed by many other parts of the country which have hitherto had a struggle for existence, owing to the poverty of their iron-stone deposits and consequent low quality of pig-iron."

The President announced that the Bessemer Medal had been awarded to Mr. PETER COOPER, "the father of the iron trade of America." Mr. COOPER, he said, had been alive before the King of France had come to so tragic an end at the close of the eighteenth century. He had earned for himself the highest possible respect in America. From his own designs he had built and afterward driven the first locomotive constructed in the United States. Five-and-twenty years ago, as they all knew, he had established the great Cooper Institute, which was now giving excellent (free) education—education of the technical kind we desired to excite among our own iron-makers."

Mr. LOWTHIAN BELL, as a friend of Mr. COOPER'S, acknowledged the presentation, remarking that "Mr. COOPER had erected the building which had been referred to by the expenditure of all his realized capital up to the period—an act of service to scientific instruction which he believed was almost without parallel in the history of the development of science." Mr. COOPER'S great age—he is now in his 89th year—prevented his attending the meeting to receive the medal in person.

SIEMENS added new glory to his already illustrious name by making a magnificent offer to the Council of the Institute in the following terms:

"It having been recognized by the members of this as well as of other institutions that it would be desirable to have a building of sufficient capacity to represent the societies cultivating the various branches of applied science, as suggested in my inaugural address to the Iron and Steel Institute in 1877, I move that the committee then appointed to promote that object and to confer with other societies be reappointed; and with a view to giving effect to these efforts, I hereby offer to give the sum of £10,000 in aid of the construction (applause, loud and prolonged) of such a building on a suitable site at Westminster."

EXPORTS OF IRON FROM GREAT BRITAIN TO THE UNITED STATES.

The exports to the United States from Great Britain for the first four months of 1878 and 1879 were as follows:

	1879. Tons.	1878. Tons.	1879. £	1878. £
Iron—Pig	14,689	7,671	57,238	31,150
" Bar, Angle, Bolt, and Rod	958	2,006	9,373	17,505
" Railroad, of all sorts	1,184	134	8,510	1,741
" Hoops, Sheets, and Plates	357	189	5,606	2,910
" Cast or Wrought, and all other manufactures unenumerated	2,000	721	25,095	15,314
Tin Plates	44,226	32,998	772,430	612,112

The exports of pig-iron have nearly doubled. Bar, angle, bolt, and rod

have fallen off, but all other articles show an increase. Tin plates show a very marked increase in both quantity and value.

The total shipments of all kinds of iron and steel to all countries for the first four months of 1878 were 696,086 tons, valued at £5,889,125, and for the first four months of this year 727,089 tons, valued at £5,255,770.

MANUFACTURING NOTES.

We recently visited the works of the Pittsburg Bridge Company, and found them busy on an order for bridge work from Columbus, Ind., and on another from Goshen, in the same State, for jail work. This firm also has in hand a number of orders for iron derricks, which it has recently begun to build. The design of these machines is peculiarly novel and strong.

Mr. METCALF, of the firm of METCALF, PAUL & CO., is shortly to visit the mining regions of the West in the interest of the Verona Tool Works, of which the firm is the proprietor.

The works of Messrs. HUSSEY, BINNS & CO., of Pittsburg, are running on full time. The firm manufactures shovels specially adapted to the requirements of Western miners.

Messrs. A. NORTHROP & CO. have just completed covering the factory buildings and warehouses of a large glass-house in Pittsburg, with their patent sheet-iron roofing.

The Lane & Bodley Company, of Cincinnati, has about 200 men on a complement of orders from all parts for their well-known engines, tools, machinery, etc.

The Forster-Firmin Gold and Silver Amalgamating Company had its annual meeting on the 13th inst., at which all the directors and officers were unanimously reëlected. The report of the president shows that great interest is being shown in the company's process.

The Revolving Scraper Company, of Columbus, O., is extra busy filling orders for its specialty. This is a most enterprising house, and its success is well merited.

The Cheltenham Fire-Brick Works, of which Messrs. EVANS & HOWARD are proprietors, are running constantly night and day, and have been for several weeks.

The mining industry of the West is stimulating the machinery and mining supplies business of St. Louis. Among others we might mention, Mr. GEORGE FELBER, of that city, is well stocked with orders for ore-washers, screens, stamp-batteries, etc. His shops ring with activity.

NOTES ON ZINC SMELTING.

Written for the Engineering and Mining Journal by F. A. Thum.

(*Concluded from page* 351.)

As nearest to this mode of gas-firing may be named the systems of Boëtius and Bicheroux, in both of which the gas-producer is placed directly beneath the furnace, an arrangement for zinc smelting much inferior to the above. The advocates of these systems say that the whole of the heat of the produced gas is thus utilized. The air necessary for combustion they pretend to heat by circulating it within the side-walls of the producer before its entrance into the furnace. This latter arrangement can, however, have only a very slight effect, and evidently endangers, in several respects, the quality of the gas produced. We know that in the gas-producer a good deal of carbonic acid is orginally formed, which, by penetrating the upper layers of fuel, is reduced to carbonic oxide; but as this reduction requires a high temperature in those upper layers, the cooling of the producer of any kind should be avoided. It is also difficult to keep the walls of the producer sufficiently tight to prevent the air circulating within those walls from entering the producer itself, while strong partitions make the heating effect of such an arrangement quite illusory. This is still more apparent when we consider that the conducting capacity of fire-brick is very moderate, and that only by an intimate direct contact with a highly-heated, large surface of bricks, such as in Siemens's regenerative chambers or in the modern Whitwell heating stoves for blast-furnaces, large quantities of air or gas may be brought up to a high temperature. It is, therefore, only natural to find at least Boëtius having recourse to the use of blast again, undoubtedly the best remedy against most difficulties in gas-firing; and if Bicheroux succeeds in producing high degrees of heat without blast, it is most probably only on account of his abandoning the principles and, consequently, also most of the advantages of gas-firing. If we may call the consumption in a regular gas-producer one third of that in a common open fire-grate, the combustion in Boëtius and Bicheroux generators may safely be put at two thirds. The greater part of the fuel is perfectly burnt in these producers; their heat consequently is much higher than in detached ones, and this helps to reach the necessary temperature for metallurgical processes in the furnace; but the connected furnace and producer are quickly destroyed, The great importance of durability, or long campaigns, for large zinc furnaces has already been pointed out. It is not only the cost of repairs, but the waste of zinc ores, the loss of time, and the general interruption of the progress of the works are equally injurious. We may safely say that the common repairs (fire and front) of a large Belgian furnace (80 pots) can not be done in Belgium or in England with less outlay than £40, and those of large Silesian furnaces will cost about double that amount.

But, returning to the systems of gas-firing, I have to mention another design, not uncommonly seen in use at iron and glass-works, though rarely employed for zinc smelting. It goes under the names of Ponsard, Nehse, and others, and its chief peculiarity is to lead the air required for the combustion through a more or less extensive system of brick flues, which are heated externally by the waste gases; the heating-gas enters the furnace directly from the producer, which in Ponsard's plan always is placed close below the former. There is, at least, a good deal better chance for the air to get heated than in the previous systems; no reversing valves are necessary; the arrangement, once at work, appears to act continually. Still there is hardly any thing new in it. The principle is the same as that of the Calder or Wasseralfinger apparatus, used for heating blast for iron furnaces thirty or forty years ago, only that in the latter two designs the air was led through externally-heated pipes of cast-iron. This, however, must be declared an advantage as long as the heat acting upon the pipes does not exceed 500°, because metal pipes can be made much thinner, conduct heat much better, and may be kept tight and in repair more easily than pipes or flues of fire-clay. Such an arrangement always requires a good chimney draught, and the least crack or dislocation of the bricks forming the flues, which, in consequence of their expanding and contracting, can never be altogether avoided, causes the air to take the shorter way directly into the chimney along with the waste gases, instead of entering the combustion-chamber. In spite of the utmost accuracy in the building of regenerators, constant defects must be expected in their use, and any repair, at least while hot, is almost impossible. It appears therefore, decidedly more reasonable to stick to the old Calder or Wasseralfinger plans, namely, to use cast-iron pipes instead of brick flues in this kind of regenerator. Though iron pipes do not bear much heat, and must be kept further away from the fire, they certainly allow of a higher temperature in the air than is possible with the much thicker and more non-conducting fire-clay flues. In accordance with this view, Geoffrey & Howson have lately adopted the old Wasseralfinger plans for puddling with gas.

Finally, I may add a few words on another modification of Siemens's system, lately patented in Germany by A. Pütsch. In this also only the air is heated by the waste flame, while the gas-producer, as in most previous cases, stands in close connection with the furnace. Beneath the latter, two regenerative chambers are placed, filled with fire-bricks in Siemens's style. The waste gases pass through one of these chambers into the chimney, while the air goes through the other one into the furnace, and is heated. The whole appears simple, and almost an improvement on Siemens's arrangement, because the regeneration of the heating-gas in Siemens's system might be done away with, in order to save the loss of gas returning with every change of the valve; but in reality the arrangement of Pütsch is even more impracticable than most of the others. For reversing the currents of air and waste gases alternately through his two regenerative chambers, Pütsch requires two four-way valves (the same as in Siemens's furnace). One of them lies in the lower part of the chimney, directing one way the air into the furnace, the other way the waste gases into the stack. That would do well enough; but the position of the second valve, though the characteristic part of the whole construction, compared with Siemens's, is simply impracticable, because it has to be placed between furnace and regenerators in something like a white heat in most metallurgical operations. Whatever may be used here, slides or valves, for directing the gas currents, it can not possibly be kept in proper working order on account of the destructive action of the heat.

And so we necessarily come back to Siemens's system as the only one ingeniously planned and practically proved as a success. The objections frequently raised against its alternately reversing flame have, for zinc smelting at least, no bad effect at all, and the waste of gas by the changes of the valves—the only real defect of the system—might be done away with by abandoning the regeneration of the gas altogether. However, a simple calculation shows that the gain in heat by the regeneration is much greater than the loss of gas. Let us take, for instance, a large Silesian furnace with a daily consumption of 5 tons of coal (against an ore-charge of 5 to 6 tons). The size of the regenerators is about $3 \times 1 \times 6$ m. = 18 cb. m.,* half of which may be taken as filled with bricks. Then there remain 9 cb. m., to which we have to add the contents of the gas-flue up to the valve of 6 meters in length, or say 3 cb. m. more. These retain 12 cb. m. of gas at every change of the valve, which go off with the waste gases through the chimney, or, at an hourly change, 288 cb. m. per day. If we take for them the heating power above given, we arrive at a daily loss of $288 \times 1267{\cdot}17 = 364{,}945$ cal. On the other hand, we may safely say that 1 ton of coal yields 3500 cb. m. of gas of the stated composition, or 5 tons = 17,500 cb. m.; and in raising their temperature through regeneration 700°, we receive a gain in heating power of $17{,}212 \times 0{\cdot}3154 \times 700 = 3{,}800{,}065$ cal., or more than 10 times as much as the above loss. In this calculation it is left out of account that the escaping gas is heated, on an average, to $\frac{150+850}{2} = 500°$, which, under atmospheric pressure, represents $\frac{288{,}273}{773} = 102$ cb. m., instead of 288 cb. m. cold.

We may often also hear, as an objection to Siemens's system, that it entirely excludes the use of waste heat for boiler heating and similar purposes. If a heating system utilizes the fuel so perfectly that the waste gases, smokeless and almost cold, escape through the chimney, there is certainly no reason to complain of being obliged to keep extra fires for secondary purposes. Still, if such purposes may really be successfully carried out with the over-heat of smelting-furnaces, in which a high temperature is necessary, and if, as in zinc smelting, gas heating is preferred to direct fire, the easiest and at the same time an economical mode of using gas is to apply blast under the producer as well as in the furnace. For zinc smelting, the producer should always be detached from the furnace. The waste heat may then most effectually be used for calcining calamine or blende. Such an arrangement is simpler to carry out and to attend to; it is altogether a rougher one, but in an economical respect hardly less favorable than the regenerative system, provided a perfect utilization of the waste heat in the suggested manner is constantly secured. The calcination of calamine, as well as that of blende, has been successfully carried out for years by the waste heat of zinc furnaces with direct-draught fires, and the application of blast and gas can make its success only a more sure one. Still the only suitable fuel in that case will be a middling good gas-coal; the calcination of calamine or of blende may be carried out on a large scale with a very moderate amount of fuel and labor, so that in reality the combination of smelting and calcining is adapted only to small enterprises. For larger

* For zinc furnaces, the capacity of the regenerative chambers must be larger than for most other purposes, especially iron and steel work, on account of the frequent heavy deposits of zinc oxide.

works, a separation of the different processes is decidedly preferable, and with it also the Siemens system is to be preferred to every other heating arrangement for the smelting-furnaces.

ON THE METHOD OF EXTRACTING GOLD, SILVER, AND OTHER METALS FROM PYRITES.*

By W. A. Dixon, F.C.S., Cor. Mem. Nat. Hist. Soc. Glasgow.

(*Continued from page* 352.)

It is difficult to account for the fact that, in the case of the more complex mineral, the chlorine, even in large excess, exerts so little action on the gold, and that when all the copper has been removed previous to treatment; but in every trial similar results were obtained. It seems probable, however, that the state of aggregation of the metal has some influence on its solubility in chlorine, and that as a mispickel dissolves gold, it was therefore obtained in the residue in a finely-divided state, less so in the iron pyrites residue, and least divided in the complex ore. In the last, mere traces of gold were obtained by re-treating the residues from the first treatment by chlorine.

The only other salts of gold which possess sufficient stability to render their use possible for its extraction are the auricyanides of the alkali metals and bromide of gold. Bromide would, however, be more expensive and more troublesome to use than chlorine, and, moreover, in one or two trials gave me smaller results than were obtained by chlorine. Skey† has described a method of testing for gold by the use of bromine-water, and also with tincture of iodine. I have been unable to obtain any reaction either with tincture of iodine, or with solution of iodine in iodide of potassium, which, considering the unstable character of the gold iodides, is scarcely to be wondered at.

Prince Balgration and Elsner‡ have observed that precipitated gold is soluble in cyanide of potassium if exposed to the air, and, the latter says, also in ferrocyanide of potassium. A patent was applied for in America in 1868, for the use of cyanide of potassium for the extraction of gold from its ores; but I have no particulars of the process. It seemed to me, however, that the high price of this salt, its instability when exposed to the air and in solution, and its extremely poisonous properties, precluded its use for this purpose. On trying the reaction between precipitated gold and cyanide of potassium, I found that it was extremely slow if the gold was at all dense. In presence of alkaline oxidizing agents, however, I found that the solution of the gold was sufficiently rapid. Thus, on standing over-night, the quantity of gold and cyanide of potassium solutions being similar in each case—with the cyanide alone, traces only of gold were dissolved, but with the addition of calcium hypochlorite, ferrocyanide of potassium, or binoxide of manganese, all the gold was dissolved; with chromate of potassium, a small quantity; with permanganate of potassium, none.

With ferrocyanide of potassium alone, I did not obtain any gold in solution after standing some days, but I thought that with suitable oxidizing agents it might be obtained in solution according to the equation—

$$4Au + 2K_4FeCy_6 + 7O + 4H_2O = 4AuCy_2 + Fe_2O_3 + 8KHO.$$

In the cold, however, with the exception of ferricyanide of potassium, none of the above oxidizing agents had any effect, but, heated to 212° Fahr., the reaction with all of them was sufficiently rapid, and I found that this was also the case with permanganate. This reaction promised to be of considerable value, as the gold and silver would both be obtained in solution, from which the former could be precipitated by filtering the hot solution through finely-divided metallic silver, of which an equivalent quantity would be dissolved, which, with the silver originally present, could be precipitated as sulphide. By treating the solution with ferrous hydrate, the cyanide of potassium could be retransformed into ferrocyanide, which has the important advantages of being exceedingly stable and non-poisonous. I found, however, that copper in any form precipitated both gold and silver from the solution, or, at all events, that these metals were not dissolved until the copper had all gone into solution; also, that if the copper was present as sulphide, the silver was transformed into sulphide, which is insoluble. Any copper dissolved can not be precipitated as sulphide, but I found that it could be removed by digesting the solution with ferrous hydrate, the solution being kept alkaline.

A portion of roasted arsenical pyrites was digested at 212° for twelve hours with ¼ oz. ferrocyanide of potassium, 32 grs. oxide of manganese (20 lbs. per ton), and sufficient water made alkaline by soda to make a cream—the solution yielded 9 ozs. 8 dwts. 19 grs. gold per ton, leaving 1 oz. 9 dwts. 15 grs. This was the best result obtained with these pyrites, the yield with other oxidizing agents and by more prolonged digestion being all somewhat lower.

With Mariner's Reef pyrites, trials were made with each oxidizing agent in succession, the duration of the digestion being varied from twelve to fifty-six hours; while with the soluble oxidizing agents the quantity used was in some cases little over the theoretical amount, and sometimes ten times as much. In some of the experiments, all the oxidizing agent employed was added at once, in others at successive intervals; and I found that, after four or five times the theoretical quantity had been added, a further increase had little or no influence on the result. With binoxide of manganese, on the other hand, from thirty-five to forty times the theoretical quantity gave the best results. The material used had been roasted with salt and extracted with acid, and contained so little copper that 50 grs. digested with nitric acid, the solution made alkaline by ammonia, and made up to 50 c.c., had only a faint coloration in a cylinder 3 inches deep. It contained—

	ozs.	dwts.	grs.
Gold	8	0	19
Silver	49	11	5

and yielded from 3 ozs. 12 dwts. to 5 ozs. 1 dwt. of gold, and from 46 ozs. to 46 ozs. 3 dwts. of silver per ton. This showed that all the silver which had been converted into chloride during the roasting was obtained in solution as cyanide. With the gold, on the other hand, all the results showed that with complex pyrites a portion only could be obtained in solution either in mercury or in water as cyanide or chloride, while none could be obtained as sulphide.

There being therefore no method by which the precious metals could be removed and the base metals left, it remained to fall back on one of the first principles of metallurgy, namely, to remove the base metals at the earliest stage possible, and leave the precious metals as a residue. In ordinary metallurgic operations, this end is attained by dressing and successive smeltings. I, however, arrived at the conclusion that smelting was not a desirable process, as it is expensive, and the gold and silver would at last be found alloyed with a large quantity of copper, while considerable quantities of these metals would be lost by volatilization and in the slags. These losses have been found elsewhere to be large, even when tested against the usual assay, which, as Rivot observes, is itself open to losses. That the loss of gold by any process involving smelting must be considerable is evident, when we consider that glass will hold a large amount of gold in solution. Thus, calculating from the quantity of gold used to form ruby glass, which is perfectly colorless when first melted, I find that it contains 10·88 ozs. of gold per ton; imitation topaz, 8·21 ozs. of gold per ton; imitation garnet, 27·18 and 46·33 ozs. per ton, by two different recipes. The gold is added in the form of purple of Cassius, that is, finely-divided metallic gold mixed with oxide of tin; this usually contains 30 per cent of gold, which I have taken in calculating the above numbers, or of chloride of gold—an oxidizing agent being added at the same time. In smelting operations, the ferric oxide would act as an oxidizing agent, and when once in solution it seems improbable that any practicable amount of smelting in presence of other metals would reduce and collect all the gold.

Thinking, however, that, in spite of these objections, a process of smelting was the only one which was likely to be successful, I turned my attention to the removal of the copper, so that I might obtain it separate from the gold and silver. Although many wet extraction processes have been used with success elsewhere, none of them appears to be quite suitable to the circumstances obtaining in these colonies. Perhaps the most successful has been the Longmaids's process as improved by Henderson, and, so far as the recovery of gold and silver is concerned, by Claudet. Worked in Great Britain, it has rendered available immense quantities of copper ores too poor to be treated by any other method; but there, salt costs from 10s. to 15s. per ton, while here it is seldom less than £3. There, scrap-iron is cheap; here, if consumed in any quantity, it would be very expensive, while inland carriage would immensely add to the cost of both. Again, in Great Britain the sulphur in the ores being used for the manufacture of sulphuric acid, it pays the whole or the greater part of the mining and carriage and the whole cost of the preliminary preparation and roasting, while the residual oxide of iron free from copper and sulphur is nearly of the value of hematite for fettling puddling furnaces; here, both would be valueless.

With regard to Claudet's process for extracting the small quantity of gold and silver obtained in solution along with the copper by precipitation with iodide of zinc, the very small cost of which (9d. per ton of ore) has been noticed in the report of the Victorian Commission appointed to inquire into the treatment of pyrites, and others, I may note that this is only the *additional* cost of extracting those metals beyond that incurred in extracting the copper. It is only applicable to ores containing minute quantities of gold; and besides, it is requisite that the whole of the copper be in solution as cupric chloride, as otherwise cuprous iodide is precipitated. As the formation of cupric chloride involves the use of more salt and its precipitation of more iron than cuprous chloride, the process has been abandoned in many places where tried.

(TO BE CONTINUED.)

* A paper read before the Royal Society of N. S. W., August 1st, 1877; and published in the *Chemical News*, London, December 20th, 1878.

† *Chemical News*, xxii. 245.

‡ *Watts's Dictionary of Chemistry*; article, "Cyanides of Gold."

LABOR NOTES.

AT HOME.

CHICAGO, ILL., May 21.—A strike occurred this afternoon at Joseph H. Brown's iron works, in South Chicago, which throws about six hundred men out of employment.

The Nevada City (Cal.) *Herald* says that an effort is being made by the directors of the Derbec mine to cut down the wages of the miners from $3 to $2.50 per day. The men are kept on at $3 until definite orders shall be received from the directors.

PITTSBURG, PA., May 19.—The contract between the puddlers and iron manufacturers of this city, fixing $5 per ton as the wages for boiling iron, expires on the last day of the present month, and the question as to the contract for the next year is agitating the minds of both iron workers and manufacturers. The manufacturers say they can not afford to continue the present rates, and a lock-out will probably be the result. If so, all the iron mills here will shut down, and several thousand men will be thrown out of employment.

Schuylkill Wages Basis for April.—The following collieries drawn to furnish prices of coal sold in April, 1879, to fix rate of wages to be paid in that month, make the following returns:

Boston Run Colliery (P. & R. C. and I. Co.)	$1.68
Centralia Colliery (G. M. Prevost)	1.65
Shenandoah City Colliery (P. & R. C. and I. Co.)	1.62
North Mahanoy, " "	1.68
Knickerbocker " "	1.66

The average of these prices being $1.66, the rate of wages to be paid in the month of April, 1879, is 28 per cent below the $2.50 basis.

The rate of wages under the arrangement made by Mr. Gowen, will be 20 per cent below basis, instead of 28, as above.

ABROAD.

NEWCASTLE-ON-TYNE, May 22.—After considerable difficulty, the obstinate section of the striking coal-miners has been induced to accept the award of wages made by the Judge of the Durham County Court last week, and all the pits in the Durham Miners' Union will be working to-day. The coal-owners in Germany have taken advantage of the miners' strike here to push German coals into all the Baltic ports, and it is feared that a considerable portion of the ordinary summer trade in coals from the Tyne may have been forestalled.

PROGRESS IN SCIENCE AND THE ARTS.

General Science.

In the course of an editorial on the Brooks Underground Telegraph, concerning the merits of which we gave an account in last week's issue, the *Journal of the Telegraph* gives in its adhesion to the general principle of underground telegraphy in the following statement: "A thoroughly insulated and reliable telegraph cable, which shall supply the means of conducting telegraph wires underground in cities and under rivers and other bodies of water that must be crossed by the wires, has become a necessity." It then proceeds to give a cordial indorsement of the Brooks system as the best, cheapest, etc. Our contemporary is still disposed to confine the utility of the underground system of telegraphy to cities, in the face of the example of Germany. This partial concession, however, to the irresistible logic of events is somewhat inexplicable, in view of our contemporary's admission that "the Brooks cable can be put down at a relatively less cost than air-lines can be constructed (where a large number of wires is required), and the expense of maintenance will be but a small percentage of that of air-lines. It is estimated that the average yearly deterioration of air-lines is 10 per cent; but *these cable lines will be practically indestructible, and, once laid, can be relied upon indefinitely.*" [Italics are ours.—ED.] In the face of these admissions, and with the defects of the aërial system so obvious and notorious, the conservatism of our contemporary in limiting to the cities the utility of a system which it admits to be practically perfect, is incomprehensible.

Apropos of the Superiority of Subterranean Lines of telegraph, the Cologne *Gazette* further justifies our long-since expressed confidence in the system by the statement that the storms which have lately raged in Germany have demonstrated, in the most unmistakable manner, the fact that previous to the extended adoption of the underground plan, telegraphic communication was frequently interrupted throughout the empire with immense inconvenience. Since its introduction, in spite of snow and storm, not the slightest interruption has ever occurred in the telegraph service.

Scientific News.—The (May) *Monthly Journal of Science* (London) has an article on Ancient Glacier Action in the Punjab, with especial reference to Mr. Mathieu Williams's Theory, by Major H. A. Tracey, Royal Artillery; A Plan for Establishing Life-Saving and Signal Stations in Mid-Ocean, by J. P. Noyes, of Washington, D. C. (reprinted from the *Kansas City Review*); Is Organic Variation Fortuitous? by J. J. Murphy; the author, while announcing himself an evolutionist, and admitting Mr. Darwin's "natural selection" to be an operative agent in effecting evolution, argues that the process of evolution proves the agency of an intelligent power, acting through and controlling the unintelligent forces of habit and variation, just as the vital forces act through and control the inorganic ones; the Science of Agriculture, a complimentary editorial on the work of the Agricultural Department at Washington; book notices, proceedings of scientific societies, and notes of progress in various departments.

Harper's (for June) has an instructive paper, entitled "The Drainage of a Village," by George E. Waring, Jr., a well-known authority on sanitary matters, in which he describes the system of drainage devised by him for the village of Cumberland Mills, Maine, and which is chiefly populated by the operatives of an extensive paper manufactory.

The Journal of the Society of Arts (May 2d) has, besides the usual special announcements and proceedings of the society, two articles apropos of the much-debated question of establishing commercial relations with the interior of Africa, both advocating the construction of railways for that purpose. This issue also has an interesting discussion of Mr. Hollway's new process of metallurgy, previously noted in this department.

New York Academy of Sciences.—Before the last meeting of the Biological Section, Dr. J. S. Newberry read an interesting paper on the "Devices Employed in Nature for the Distribution of Seeds of Plants." A full description of the same will be found in the *Scientific American*, May 24th.

The Industrial Exhibition, which will be opened in Antwerp on August 21st of this year, remaining open for thirty days, it is reported by U. S. Consul Weaver, will be worthy of universal attention. Space has been allotted for American products, and it is affirmed that the display in question will afford an excellent opportunity to demonstrate the merits of American domestic utensils and manufactured articles in general. All goods must be in hand by July 31st, and heavy machinery will not be received. S. B. Haine, Antwerp, has been placed in charge of the department of American goods, and consignments should be made to him.

Metallurgy and Mineralogy.

British Iron and Steel Institute.—The proceedings of the annual meeting of this important society, which was held in London on the 7th, 8th, and 9th inst., comprised the reading and discussion of papers upon the following subjects: The Mechanical Properties of Iron and Mild Steel (D. Adamson, C.E.); on the Use of Steel in Naval Construction (Mr. N. Barnaby, C.B.); on the Elimination of Phosphorus in the Bessemer Converter (Mr. Sydney G. Thomas, F.C.S., and Percy C. Gilchrist, F.C.S.); on the Removal of Phosphorus and Sulphur in the Bessemer and Siemens-Martin Processes of Steel Manufacture (G. J. Snelus, F.C.S.); on a Ready Means of Molding Lime and Making Lime or Basic Bricks and Linings for Furnace Converters, etc. (Edw. Riley, F.C.S.); on a Practical Combination of the Bessemer and Puddling Processes (Edwin Pettitt); and on a New Process for Protecting Iron and Steel against Rust (Prof. Barff). The above notice comprises only some of the more generally interesting of the papers presented.

The Stated Meeting of the *Institute of Mining Engineers* was held in Pittsburg last week, as per our announcement, and the proceedings will appear as usual in another department of the JOURNAL.

The Brazilian Government, it is announced, has lately appointed Mr. Orville A. Derby as Geologist to the National Museum at Rio de Janeiro, to succeed the late Prof. Hartt. Mr. Derby's services as assistant to Prof. Hartt make his appointment to succeed him an especially fitting one.

Engineering, Mechanics, etc.

The International Congress on the Canal across the American Isthmus held its inaugural meeting in Paris, during the past week, at the hall of the Geographical Society of Paris, and organized by the election of the projector of the meeting, M. de Lesseps, as President, and Rear-Admiral Ammen, U.S.N., as Vice-President. Delegates from all the great commercial nations were present, the United States being represented by no less than nine officers and civilians of distinction (Ammen, Selfridge, Appleton, Christiansen, Evans, Kelly, Lawrence, Smith, and Menocal). The actual work of the Congress will not be under way before next week, when the labors of the five committees appointed—1, statistics; 2, economic and commercial relations; 3, navigation; 4, scientific questions; 5, ways and means for the construction of the canal—will be presented and discussed. The routes which will be considered are seven in number, the general features of which we give below.

The first, and next to the Nicaragua route the longest, starts from the Gulf of Darien, on the Atlantic side, ascends the river Atrato, thence crosses to the Napipi River, and thence by way of the Doguado to the Pacific, at a point called Chiri-Chiri. The total length of this line would be 290 kilometers (179·80 miles). Some 50 kilometers of excavation and filling will be required, 22 locks, and a tunnel of 6 kilometers. The advantages claimed for it are the comparatively small amount of excavation required and the favorable nature of the ground for the purpose; while its disadvantages are the number of locks, the tunnel, and inadequate harbor facilities at the Pacific end. Its cost is estimated at $99,000,000, and the time of completion nine years.

The second line starts from the same point on the Atlantic, but reaches the Pacific at the Gulf San Miguel by way of the River Fuyra. The length of this route will be but 235 kilometers (145·7 miles), but will require much more excavation and filling than the first; the number of locks will be the same, and a tunnel may be avoided. It has the advantage of splendid ports on both sides; the estimated cost is placed at $130,000,000, and the time of completion at twelve years.

The third route, starting on the Atlantic side at the point of Acanti, makes the same Pacific terminus as the second. Its length is only 125 kilometers (77·5 miles), half of which would require excavation and a tunnel of 10·5 miles. The latter is the most objectionable feature of this route; its cost is placed at $120,000,000, and the time of completion at twelve years.

The fourth route is that directly across Darien at its narrowest point. It leaves the Atlantic side at the Bay of San Blas, and, passing directly across the isthmus, tunneling through the mountains, reaches the Pacific at the Gulf of Panama. The length of this line is only 42 kilometers (26 miles), but of this 16 kilometers would require to be a tunnel of enormous size. The advantages of this route are directness, absence of locks, and good harbor facilities; but the tunnel is the great objection.

The fifth and sixth lines follow practically the line of the Panama Railroad, differing from each other only in the Pacific terminus. The first would require a canal 72 kilometers (44·6 miles) long, with 25 locks; while the other would be 73 kilometers (45·26 miles) long, and would dispense with locks by a tunnel 3¾ miles long. The cost and period of construction will be about the same as in the first and second lines, though to the cost of the engineering work in these the right of way would have to be purchased of the Panama Railroad, which holds a monopoly of the business of transportation at this part of the isthmus.

The seventh and last line, and which also is believed to be the most popular with the members, is the well-known Nicaragua route, reported upon as the most desirable by our own engineers some years ago. It leaves the Atlantic at Graytown, and, utilizing the River San Juan and Lake of Nicaragua, drops, by a series of locks and the Rio Grande, into the Pacific at Brito Harbor. Its total length would be 470 kilometers (292 miles), and twenty-five locks would be required. Its estimated cost is placed at $105,000,000, and the time required at ten years.

Engineers' Club of Philadelphia (Meeting of May 3d).—The following is an abstract of the proceedings: The System of Telephone Exchanges (Arthur Green). The author described this latest development of the usefulness of the telephone. He stated that although still in an imperfect state, it is undergoing constant improvement. Water Supply (Charles G. Darrach). This paper had special reference to the wants of Philadelphia, and discussed the merits of the much-debated proposal of constructing a storage reservoir on the upper Perkiomen Creek (in Montgomery County) with an aqueduct from that point to the city, as compared with the existing method of supplying reservoirs from independent pumping stations. He held that for many years to come the present system would be the cheaper. The Salt District of Bruce and Huron Counties, Province of Ontario, Canada (J. H. Harden). This paper presented at length the problems involved in the mining and the preparation of the salt from this locality, with especial reference to the deposits at Goderich; and was fully illustrated by maps, sections, and plans.

Several novel engineering instruments were also exhibited, notably an improved Locke level and combined plane table and transit (Heller & Brightly) and a combined section liner and shader devised by Mr. J. H. Harden.

Apropos of the forthcoming meeting of the *American Society of Civil Engineers*, which is announced to be held at Cleveland, Ohio, beginning Tuesday, June 17th, 1879, our contemporary, *Engineering News*, publishes in detail a formidable list of topics to be discussed and papers to be read before the convention.

Railroad News.—The event of the past week in railroad circles was the announcement of the leasing by the Philadelphia & Reading Company of the North Pennsylvania and the Delaware & Bound Brook railroads. This arrangement, which is, correctly or incorrectly, suspected to have ulteriorly in view the strengthening of the eastern connections of the Baltimore & Ohio road, will accrue to the immediate advantage of the Reading road in giving it command of an independent outlet for its coal traffic to New York by way of the leased lines, which, it is stated, will result in a material saving in the cost of transportation and a decided increase in its amount. The terminus of the consolidated roads n Philadelphia will be removed to Ninth and Green streets, a very cen-ral and conveniently accessible location; and the link necessary to bring he Bound Brook road into connection with the Reading will be made

by the construction of about a mile of road from Wayne station on the Germantown branch of the Reading, to Fisher's Lane on the North Pennsylvania. For this, the survey is said to have been already completed.

The Record of New Railroad Construction given by the *Railroad Gazette*, under date of May 16th, foots up 493 miles as the mileage added during the present year. For the corresponding period of 1878, the same journal reported 312 miles; and for 1877, 354 miles.

The Annual Convention of the Railway Master-Mechanics' Association was held during the past week in Cincinnati. The most important business transacted, it appears, was the adoption, by a decided majority, of the standard axle of the Master Car-Builders.

Engineering Items.—The proposition is being debated of constructing either a tunnel or a bridge between the city of Boston proper and East Boston.——In the House of Representatives, the Committee on Levees of the Mississippi River agreed to report favorably a bill providing for the appointment of a commission to direct and complete the survey of the Mississippi River and to report the result of their work to the Secretary of War, together with plans and estimates for the improvement of the river, and the prevention of destructive floods. The bill authorizes the expenditure of $175,000, or as much thereof as may be found necessary to effect the purposes for which the Commission was formed. ——It is announced that the claim just made by Capt. Eads for an additional payment of $500,000, on the strength of his representation that he has secured at the mouth of the Mississippi a channel 25 feet deep and 200 feet wide, has been allowed.——The decision of the United States Supreme Court, affirming to the Denver & Rio Grande Railroad prior right of location over several routes named in its charter, is reported to have had the effect of winning for it a strong financial support, which will enable it to complete further its principal lines in Colorado, Utah, Arizona, and New Mexico, which are covered by the decision. This year, it is said, the line will be extended to Leadville, to Santa Fè, and the San Juan.——The question of the practicability of establishing communication either by rail or canal between Lake Winnipeg and Hudson's Bay, as an outlet for the agricultural products of the Northwest Territory, has been submitted by the Canadian government to the decision of a Survey Commission, which has reported in terms favorable to the railway project as the most feasible and desirable. The estimated cost of the road is placed at $32,000,000. (For the facts above given we are indebted to *Engineering News.*)

Wire Belting made from a network of crucible steel wire, and of any desired length and width, is a novelty manufactured by a German firm.

THE EAMES PETROLEUM FUEL PROCESS.—A new bloomery, for the manufacture of iron by the Eames process, will be started at once in Titusville, and fifty hands employed.

PROGRESS OF THE SOUTHERN PACIFIC RAILROAD.—SAN FRANCISCO, May 19.—The Southern Pacific Railroad Company has opened a station at Casa Grande, Arizona, 183 miles east of Yuma and 914 miles distant from San Francisco.

LEPREAUX ANTHRACITE COAL.—The mine of anthracite coal at Point Lepreaux is attracting the attention of American capitalists. Mr. H. L. Fuller, manager of the Jaddow Coal Pit, Pennsylvania, has been instructed by Mr. Belloni, of New York, proprietor of the Block House Mines, Cape Breton, to proceed at once to Lepreaux and make a careful examination of the nature and extent of the coal deposit there.

THE GLENDON MINE DISASTER.—EASTON, PA., May 19, 1879.—The entire force of miners for the Glendon Iron Company worked all day yesterday searching for the body of John Boas, who was killed by the caving in of the mine on Saturday. The body was found about 10 o'clock in a standing position entirely buried in mud and *débris*. Over five thousand persons visited the mine yesterday.

INCORPORATION OF THE EDISON TELEPHONE COMPANY.—The Edison Telephone Company, of Europe, Limited, filed articles of incorporation on the 20th inst., the incorporators being Thomas A Edison, Robert L. Cutting, Robert L. Cutting, Jr., S. S. White, and James H. Banker, who are also trustees for the first year. The company is to continue 20 years, the capital being $100,000, divided into 1000 shares, the par value being $100 each. The business is purchasing and owning, using and procuring to be used in Europe and elsewhere inventions in or relative to speaking telephones.

A FIRE IN THE KEYSTONE MINE.—POTTSVILLE, May 20.—The fire in this mine, which broke out yesterday morning, is still burning, and is in such a position that it can not be reached by water through hose. Men have been drawing the coal all day to cut the fire off, thus far with no apparent success. It is feared that the colliery will have to be flooded, which will throw a large number of men and boys out of employment for several months. No reason can be given for the ignition of the veins, the supposition being that it is part of an old fire that was discovered in these workings several weeks ago, and presumed to have been subdued.

This mine is operated by the Philadelphia & Reading Coal and Iron Company.

PENNSYLVANIA ENCOURAGING THE MINING INDUSTRY.—A bill passed the Pennsylvania Legislature on the 20th instant exempting from taxation the receipts of corporations incorporated for the business of manufacturing or refining ores or minerals not found in the State, as follows:

"That it shall not be required that any corporation created or existing now or hereafter, in accordance with the provisions of any general or special act of Assembly, which may be engaged wholly in manufacturing, smelting, refining, or reducing gold and silver ores and sulphur or other mineral products obtained in the refining and reduction thereof, of any State, territory, or kingdom other than this State, shall pay into the State Treasury of the Commonwealth any tax upon the gross receipts or profits arising from said manufacture, smelting, refining, or reduction. Provided that the provisions of this act shall not apply to any mineral or other product now found in this State, excepting the use of coal and lime as may be needed in the manufacture of minerals not found or mined in this State. Provided, further, that the origin of said gross income or profits shall be clearly established in a statement submitted under oath or affirmation to the Auditor-General. Nothing in this act is to be construed to authorize any exemption from payment of taxes on real estate owned by such corporation as levied upon other property owners."

BESSEMERIZING SULPHIDES.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In your recent editorial on the new process of Bessemerizing sulphides, there are two points which seem to me liable to cause undeserved prejudices against the process. Will you kindly permit me to point them out and to criticise them?

In the first place, you think it clear to every copper metallurgist that the economy of the process will be questionable, if it needs expensive plant, and if it replaces only one or two of the preliminary roastings of the ordinary process. Your language would seem to imply that "one or two of the preliminary roastings" are inexpensive things in the ordinary process; so inexpensive that it probably would not pay to put up expensive plant in order to save their cost.

That they are expensive things, *very expensive* in cases where it is proposed to substitute Bessemerizing, and that it may well pay to put up very costly plant in order to diminish their expense, I think will appear from the following statements:

By the "ordinary process" you probably refer to either the Longmaid process (by which most of the Spanish ores which Mr. Hollway proposes to treat are worked in England) or to the ordinary method of alternate smeltings in cupolas and roastings. The ores which Mr. Eustis and I aimed to treat by Bessemerizing have been worked by both these processes, and are, indeed, closely allied to the Spanish ores.

In the Longmaid process, the cost of the two "preliminary roastings" is, in the case of the Spanish ores, 2½ cents per pound of copper, or only 50 per cent of the entire cost of extraction.

If, on the other hand, Bessemerizing is to replace any portion of the common cupola process, it must at least replace the first roasting and smelting, yielding say a 30 per cent matte. These operations cost, under ordinary circumstances, in the case of Spanish pyrites, 2 cents per pound of copper, or 70 per cent of the total cost of producing ingot copper. The preliminary operations, which the newly-proposed Bessemerizing process will replace, if successful, cost then in these several cases from 50 to 70 per cent of the entire expense of the whole metallurgical treatment from ore to ingots.

In the treatment of 2,000,000 tons of Spanish pyrites per annum, the cost of these "preliminary roastings" would be about $4,700,000 (if it were all treated by the Longmaid process). It will be admitted that the saving of a small proportion of this amount would amply repay the erection of costly plant.

Turning now to your concluding paragraph, you seem to imply something which the facts hardly warrant. You state that it is now for the first time proposed to "supply from oxidation, in a continuous operation, the heat for fusing the ore." So far as my investigations of the question have gone, they bear out your statement. In this point (which is the really valuable element in the process), the "fatal precedents" you quote, according to your own showing, do not bear on the question in the least, nor does the process of William H. Raht (ENGINEERING AND MINING JOURNAL, April 12th, 1879). Without this element, Bessemerizing sulphides would be like the play of "Hamlet" minus Hamlet's part. Mr. Hollway would doubtless join us in cheerfully relinquishing to our fatal preceders this play of "Hamlet," if they join you in awarding us this Hamlet's part itself. We do not care who has the shells, if we have the oyster.

You go on to say that the introduction of this valuable element into the process adds one more difficulty to those which our fatal preceders have encountered, and gives an additional chance of failure, without removing any of the chances of failure to which they have been exposed. You do not say that the chances of failure are therefore by just so much greater, but one would naturally infer from your words that you thought and meant to imply that they were. I presume that the introduction of the part of Hamlet into the play introduced an additional difficulty and created an additional chance of failure; but it simultaneously created an immeasurably greater chance of success, which so far outweighed the chance of failure which it introduced that the latter could be neglected.

In considering new elements in a process in this way, two questions should be asked—first, "What difficulties will it introduce?" second, "What advantages will it produce?" In so far as it introduces difficulties, it increases the chances of failure; in so far as it produces advantages, it increases the chances of success. Whether it, on the whole, increases the chances of failure or of success, depends on whether the difficulties it introduces outweigh or are outweighed by the advantages which it offers.

In this case, the utilization of the heat produced by the oxidation of the iron to fuse the ore subsequently charged does not seem to be a particularly difficult problem in itself. Bessemerizing sulphides undoubtedly offers great technical difficulties, but I can not see that these difficulties are greatly increased by the attempt to utilize the heat which must be generated *nolens volens*. *Per contra*, the advantages which it offers are enormous. Simply for roasting the 2,000,000 tons of Spanish pyrites, which are raised annually, about 830,000 tons of coal would be needed if it were all treated by the Longmaid process; the new invention offers to save practically the whole of this amount. The saving in treating other similar ores would be in the same proportion.

Therefore I hold that this new element offers advantages which so greatly outweigh the difficulties which it introduces that, far from increasing the chances of failure, as you imply, it greatly lessens them.

CAPELTON, CANADA, May 7, 1879. HENRY M. HOWE.

PACIFIC COAST MINING NOTES.

We give below the views of a correspondent, who is not an expert in mining matters, but who is visiting the various camps under favorable auspices for the purpose of gaining information on the mineral wealth of the country. We hope, for the benefit of those who have invested in

the stock, that his very sanguine view of the value of the Standard mine may be realized.

PALACE HOTEL, SAN FRANCISCO, May 11, 1879.

EDITOR ENGINEERING AND MINING JOURNAL :

SIR : I have just returned from a visit to a few of the mining camps, and hasten to communicate to you some of my impressions. I visited Belleville, near where the Northern Belle mine is situated, and found the camp very gloomy. After having paid $32 dividends, the ore-body seemed to be worked out, and only one of the two fine mills is in operation, and that only half-time. There is every reason to believe that other mines will prove highly productive in this region ; but the wood and water problems are serious ones—one costs $16 per cord and the other 5 cents per gallon at the mines. It would require money and pluck, and a good deal of both, to utilize this district. There are plenty of prospects here, and it may yet develop into a splendid mining region.

I also visited the now famous Mammoth mine, in what is known as the Lake region of the Sierras. It is located at the entrance to a pass which leads to the Yosemite. The latter is only 25 miles distant from the mine as the crow flies, but 42 miles by trail.

The Mammoth mine has a splendid location on the side of a mountain, in the neighborhood of which is an abundance of fine timber and water.

The croppings of this mine are something phenomenal, but the first tunnel under the croppings did not reveal much pay ore. The second tunnel, however, further down the mountain, opened up a cross-cut, in which was ore which assayed up into the thousands. The vein gives every evidence of permanence, but a third tunnel, some 600 feet below the second adit, will tell the story. If that shows pay ore, then will the Mammoth rank as one of the great gold and silver mines of the world. The mountain is already covered with claims, but no work has been done except on the Mammoth mine. Should this mine "strike it rich" within the next three months, there will be immense activity in this region. There is already quite a rush to the Lake region.

I visited Bodie on my way back, and found the camp somewhat dull, although without reason as far as I could see, as there is every prospect of the development of several fine mines before the close of the year. I think you will hear some good news from the Bodie mine before a great while, and also probably from the Mono.

In company with Mr. Philipp Deidesheimer, of the Hale & Norcross mine, I visited and thoroughly inspected the Bulwer and Standard mines. They are both splendid properties, and are wisely and economically managed. If the stock of the Standard is as wisely managed in New York as the mine is managed in Bodie, it ought to go to par, for the ore-bodies are rich and permanent.

Mr. Deidesheimer, who is one of the wisest and most accomplished experts on the coast, was highly pleased with the appearance of the Standard, and did not hesitate to predict that its rich ore-bodies would continue to great depths.

From a flying visit to Virginia City, I get the impression that there will be no serious effort to develop the new bonanzas before early fall. There may be a deal in the water stocks in July ; but unless an ore-body is accidentally stumbled upon, the Comstock lode will remain under a cloud until September. There is a surprising unanimity of opinion that there is a great bonanza running from Ophir to Sierra Nevada. California is about to be plunged into another election contest, as in September a Legislature is to be chosen to put into effect the provisions of the new constitution. The contest will be fierce and the effect upon mining interests unfavorable.

D. G. C.

GENERAL MINING NEWS.

CALIFORNIA.

A rich strike is reported in the Enterprise mine at Fresno Flats. The main shaft has disclosed a body of very rich ore. The strike in the Enterprise has increased the mining excitement in that neighborhood.

THE COPPEROPOLIS MINES.

From a letter to the Calaveras *Chronicle* of May 10th we condense as follows concerning these mines :

"The Golden State Copper mine is located 7 miles west of Copperopolis, 1½ miles east of Telegraph City, on Sheeley's Gulch. At present it is looking well, a two-foot vein at a depth of 50 feet. Shipments of ore to Milton will be made soon.

"The Eagle Copper and Silver Mining Company's mine is 7 miles southeast from Milton. Depth of shaft 150 feet. Average width of vein, 5 feet. Walls, soft. Shipment of last month, 600 tons. At present awaiting transportation, 950 tons. Average assays : Copper, per cent, 20 ; gold, per ton, $18 ; silver, $12, and a very large per cent of zinc. Cost of shipment per ton to Milton, $2 ; Milton to San Francisco, per car, $21. There are three different levels, in all of which the indications are about the same as in the shaft. The mine requires but very little timbering.

"The New York Copper mine is steadily improving. Present depth of shaft, 50 feet ; width of vein, 4 feet. This mine is the most advantageously situated in the county. There is an abundance of both wood and water at hand. Distance from Milton, 5 miles. It is the intention of the company to ship ore inside of 60 days. At present there are six men employed.

"The crushing of a lot of quartz from the Lewis & Fairchild mine—about 77 tons—in Garland's mill at Mosquito, was completed lately. We learn that the ore yielded an average of about $30 per ton."

THE BODIE DISTRICT.

From the *Standard* of the 10th inst. we condense the following :

"The leading and growing interests of the district at present are the Standard Consolidated, Bulwer, and Tioga works, enough in themselves to 'keep the camp alive' for at least two years to come, and all this above the 400 levels. The 700 level of the Standard is now being opened to such extent that every week henceforth will be showing something new and suggestive as to the more distant future of the district. The Tioga is rapidly extending a cross-cut west on the 520 level, vertical, which will most likely place it third in the list of mines, and add materially to the solid interests of Bodie Bluff. On Silver Hill, the Dudley has new machinery on the way, with which to prospect their large claim, as well as the Aurora Tunnel ground to a depth of 600 feet, and the Addenda is already nearing the 500 level. Pertaining to Queen Bee Hill, the Noonday and Booker are leaving nothing undone toward the development of their respective claims—that is, with heavier machinery. A dozen other companies, with steam hoisting-works, are continuing exploration at different points all along the line, and with excellent prospects. The machinery for the new hoisting-works of the Defiance will soon be set up, and at an important point—Silver Hill. The new machinery for the Jupiter, joining on Standard and Summit, will soon be erected."

Within a radius of eighty or ninety miles, says the Bodie *News* of May 9th, there are a dozen different mining districts, all of more or less prominence in the mining world, which have been opened up and worked within a few years. Principal among these are Bodie and Lake districts, portions of the world which have attracted but a small share of attention previous to 1877, but have become, through the indefatigable exertions of speculative men, the leading districts of the country. Besides these two mentioned, there are many others which are fast putting in their claims for prominence and worth. Tioga, Indian, Keith, Weir, Prescott, and many others whose names now escape us, have each their adherents and champions, who claim for their respective districts every point of excellence in the mining vocabulary. With our immense scope of mineral country, extending for miles north and south from us, we can safely predict the future of Mono County to exceed in point of richness any other section.

Commissioner Williamson, of the General Land Office, has declared the famous Sixteenth Section Survey of Bodie invalid. He says that it was irregular. This clears the titles to the Bodie mines, and leaves things as they were.

The engineer of the Pemberton Hydraulic Gold Mining Company writes from Forest Hills, Cal., as follows, under date of May 12th :

"I have run two powder drifts, have a ton and a half of powder in the ground, and will have a blast this week. The gravel dug out in drifting looks well and gives good prospects, every shovelful showing gold. We have laid nearly 2000 feet of pipe, graded long distances where the ground is rough, built two trestles across the ravines, one 200 feet long and 25 feet high. We have got our ditch in order, flume and sand-box completed; have built roads as near as practicable to our work. I have located 50 acres adjoining the claim and having a survey made of it for a patent. Before this reaches you, we shall have water running through our pipes, but only to use in washing away useless material to fill our drops with. It is of no use to wash gravel till we are all prepared."

DAKOTA.

THE BLACK HILLS.

We condense from the *Herald* of the 11th inst. as follows :

Machinery for the Golden Terra mill continues to arrive. It is reported that the Hidden Treasure 30-stamp mill has been leased to the Caledonia Company. Favorable news is received regarding the Rhoderick Dhu mine. In the Nez Percez mine the recent milling of ore from the surface gave a result of $5 per ton.

Trouble is impending between the owners of Buckeye No. 2 and those of the Great Republic, at the head of Sawpit Gulch. The lines of Hearst's mine take in almost the whole of the ground claimed by the Great Republic. These two mines lie to the north of the Golden Eagle and Hussey locations, and are valuable properties.

Work is progressing on Golden Eagle mine with favorable prospects.

The *Pioneer* says :

"The Pierce, the southern extension of the Homestake, was sold on the 12th inst. to Colonel Thomas Bell and General J. W. Gashweiler, for $75,000 cash. A thorough examination of the mine was made, and it was pronounced cheap property. A small hole has been sunk on the mine and over $6000 worth of ore taken out and milled. The mine will be incorporated at once and placed on the New York Stock Exchange list. Pumping and hoisting works will be erected, and the development of the ledge is to be prosecuted with California vigor.

"The Sam mine, which is parallel and adjacent to the Father de Smet, has a breast of ore exposed, thirty feet wide and fifty feet high. The owners contemplate erecting a quartz-mill. The Anchor mine, on Strawberry Gulch, has, it is said, recently struck the richest ore yet discovered in the Hills.

"Great activity is reported in the Castle Creek mines. The placer mines are doing well, and the amount of gold obtained from them this season will be much greater than the product last year. The quartz outlook is also encouraging. A number of big veins, rich in gold, are being extensively explored. The most prominent mine is the Sullivan, the ledge of which is forty feet in width, and shows as handsome a face of ore as any mine in the Hills. The mine was bonded last week for Eastern parties, who propose to erect an eighty-stamp mill, which it is thought will be thumping away on Sullivan quartz ere autumn. The propelling power will be water, Castle Creek being capable of running 500 stamps at this point."

COLORADO.

Two of Billings & Eilers's 50-ton furnaces are running on Little Pittsburg ore.

The Silver Cliff *Miner* says :

"The engine of the King of the Valley is now in full blast. Wednesday its power was used in hoisting water from the mine. If we remember rightly, this is an eight horse-power engine."

The snow is said to have been shoveled out of the road between Carbonateville and Kokomo, and all mud. Communication is established between the two places.

Silver Cliff is excited over a discovery of rich placer diggings, six miles south of that city. A thousand men are reported to have visited the locality within a few days, and a large number of claims have been staked out. There are contrary reports, however, that the excitement is without grounds.

The Boulder *News* says : "A fine strike has been made in the 75-foot level of the Louis mine on Golden Age Hill. The workings show a two-inch streak of tellurium, which runs very high and shows the existence of a rich body of ore which will undoubtedly prove a bonanza to the stockholders.

"The Valley Smelting-Works at Golden are about to add another water-jacket furnace to their workings. The French Company's works at the same place are nearly complete. It is claimed that they will have a capacity equal to any in the State.

The South Park Coal Company has secured nearly 3000 acres of coal land at the east end of the Park on the Denver & South Park Railroad. A shaft has been sunk 70 feet, cutting a 7-foot coal-vein which has given very good results for blacksmith purposes. Below this is another vein of the same thickness, which has been opened further down on the hillside. The coal is said to be strong, and suitable for steam and domestic purposes, and has been thoroughly tested. The lowest vein opened is 8 feet thick ; the coal is quick-burning and entirely free from sulphur. The veins are all above water-level, and can be worked by drifts. The property will be thoroughly prospected by steam-drills and a number of shafts and drifts will be opened, so that a large production can be secured when the railroad is ready to transport the coal.

THE DUNDERBERG MINE.

The Georgetown *Miner* of the 17th inst. says : "Some of the ore extracted by Warner & Co., lessees, west of the deep shaft, is as rich as any yet taken out of this mine, carrying large quantities of gray copper and smaller proportions of native silver and native copper. The lessees are back-stoping at that point from three to eight inches of ore, which mills 522 and 214 ozs. for first and second-class ores respectively. The original lessees are working twelve men east of the deep shaft, where from ten to fourteen inches of ore in the slope are encountered, which mills from 250 ozs. to 300 ozs. silver per ton, assorted. The deep shaft is 90 feet down and looks splendid. Four men are working on the sub-lease a short distance east of the discovery-shaft, where from 2 to 4 inches of ore milling 275 ozs. are encountered. Two parties of lessees are working through the Hayes and Tyler tunnel, and are sinking a shaft at the intersection of the tunnel and the lode at the depth of 150 feet. The vein is 8 inches in width. The total number of men employed about this mine is 40, and the indications are very favorable in all parts of the same.

CONSOLIDATED REPUBLICAN MOUNTAIN MINING COMPANY.

The Everett tunnel, started about two months ago, is now 120 feet in length ; ten men are steadily employed on three shafts. The drift along the south wall of

the Morning Star, at a depth of 110 feet, shows a 8-inch vein, assaying from 300 to 600 ounces.

THE MONTEZUMA MINING COMPANY.

The Superintendent says of this mine: "The Chautauqua tunnel has been carried ahead as fast as three shifts of men can work. Active operations are going forward in this mine, and preparations are being made for permanent work with favorable prospects."

THE TIN CUP DISTRICT.

The Tin Cup District is attracting a great deal of attention at present. It is about 70 miles from Leadville, and promises some rich developments. From 30 to 40 persons are going there per day. Little besides staking claims is being done, however; 1500 lbs. of selected ore from Gold Hill gave at the rate of $1044 per ton, while second-class yielded $215, and third-class $118 per ton. Petitions for a Post-office at Hillerton have been signed by over 100 persons. There are said to be from 60 to 75 tons of ore on the dump of the Golden Cup mine, which will run from $100 to $1000 per ton.

The Denver *Tribune* says:

"Articles of association were filed with the Secretary of State yesterday by the Leadville Mining and Stock Exchange. The organization is formed for the following purposes: To ascertain and fix the value of stock in all gold, silver, and other mines in Colorado; to place upon the market and aid the sale of mining property situated in the State; to encourage immigration into the State and settlement of agricultural lands and the development of mineral in the State; to place upon the market and aid in the sale of mines outside the State. The capital stock is fixed at $25,000, divided into shares of $25. The organization is to exist for twenty years. The directors for the first year are: H. A. W. Tabor, L. J. Smith, A. P. W. Skinner, John Kerr, George A. Hynes, and John Stuart. The principal business will be carried on in Lake County, with the principal office at Leadville."

"A private and confidential letter was received by a gentleman in this city from an old friend, stating that large deposits of carbonates have been discovered in a section of the State where thus far there has been no excitement. The specimens in two hundred pound lots assay from fifty to three hundred ounces silver, and indications of great extent and value of the deposit are beyond question. The *Tribune* was unable to obtain permission to publish the locality or the names of the fortunate prospectors, some of whom are well known in Denver. There can be no doubt, however, that the strike is a wonderfully rich one, and that when the facts are made public there will be a stampede for the new camp."

MAINE.

The Portland *Press* mentions the following as among the mines now operated in Sullivan, Goldsboro, and Hancock counties, most of them having been started within the last two months. Claims elsewhere are being taken up rapidly, and there is a prospect of double this number inside of six months:

"In Sullivan County are the Waukeag, Cline, Stimpson, Sullivan, Ferrey, Ashley, Millbrook, Perry, and Bean's mines, employing a total of sixty-eight men.

"At Goldsboro are the Young, Guptill, Treat, Petit Menan, and the Soule, employing a total force of twenty-six men.

"In Cherryfield are two at Sprague's Falls, two at Harrington, one at Columbia Falls, and one at Machias. The last six mines mentioned employ twenty-two men.

"A company is forming at Belfast to work another claim at Bluehill; also, one in Boston, to work one in Bluehill.

"A telegraph line is being put through from Milbury to Sullivan for the convenience of the mining men in that place.

"It is stated that free gold has been found in numerous places in Hancock County."

MASSACHUSETTS.

The Boston *Commercial Bulletin* says: "Newburyport is happy over the improved condition of her silver mines. The concentrated ore of the Merrimac mine is much richer than was anticipated, and the China, now sinking a shaft, is producing the best ore yet discovered."

MISSOURI.

THE MINES OF THE NEOSHO COMPANY.

The *Miner and Mechanic* of the 17th inst. says that the company operating these mines is meeting with flattering success. The superintendent during the week has taken out with four men 6000 pounds fine mineral, and promises to increase the amount to 10,000 pounds the coming week. Shaft down 26 feet.

The yield of zinc ore last week reached 366,000 pounds—the largest yield turned out in a single week.

The Missouri Zinc Company has its only reducing furnace now running on silicate ore. The company is raising 16 car-loads per week and shipping about 10.

Eleven dollars per thousand is the prevalent rate of mineral.

Moffett & Sargeant, of Joplin, are paying only $9.50 for mineral on their own land, and $15 for neutral.

NEVADA.

COMSTOCK.

From the summary in the Gold Hill *News* of the 14th inst. we condense as follows: "Sierra Nevada still moves slowly on, but a perceptible advance has been made toward ore extraction. Ophir's incline, too, has remained stationary just where interest centers strongly around it, and the 2300 station is nearly completed. The new north drift, 2100 level, will bear watching. The repairs to the machinery at the C. & C. shaft have been completed and the usual order of things restored to the Bonanza mines. At the Bullion and Con. Imperial, operations are completed for immediate and effective action. Crown Point and Belcher are each nearly ready to open up a lower level. Alta has reached it and made its programme public. Justice and Silver Hill are also advancing and increasing in interest.

"The water on the Julia is now being stored by Mr. Sutro in the Savage.

"A drift is being started on the 1600 level of the Hale & Norcross, to connect with the lateral drift of the Sutro Tunnel running out to the Julia mine. This drift will be over 300 feet in length, and will be pushed ahead as rapidly as possible. It is intended for use in case there shall at any time be more water sent to the Requa shaft than can be handled at that point. It is also intended to have the drift completed by the time Sutro completes his sub-drain."

A dispatch dated San Francisco, May 20th, says:

"The sub-drain in the Sutro Tunnel for the week ending May 15th was carried 2922 feet. The total completed excavation on that date was 9367 feet. The remaining portion is about half excavated already, but only the completed excavation is reported. The work of laying the boxes is being diligently pushed as the excavation is prepared. Over 1200 men are employed."

A later dispatch, dated Sutro, Nev., May 22d, says:

"Good progress is making on the sub-drain of the Sutro Tunnel, which is intended to carry off the hot water from the Comstock mines. More than half the drain, or some two miles, is already finished, and with 1200 men and 120 mules working day and night it is thought the water can be turned into it on the 4th of July next. This event is looked for with eagerness by the mining population, for it may mark a new era of prosperity for the bonanza and other mines embraced within this district. Millions of tons of low-grade ore passed by in former times will be made available, and it is expected that one thousand additional stamps at the mouth of the tunnel may be kept going for half a century."

After the sub-drain is finished, the tunnel will have to be widened and another track laid over the drain. Mr. Sutro says that for at least two years he expects to employ about 400 men regularly on this.

THE MINING RESOURCES OF DOUGLAS COUNTY.

The Carson Valley *News* says:

"The range of mountains lying between Carson and Walker rivers are without a doubt rich in gold and silver. This range is but a continuation of that on which the Comstock is situated, and directly in the mineral belt. On the western slope of these mountains the ledges are small and 'pinch' out at a short depth; but on the eastern slope they begin small and seem to increase in size as depth is attained. They resemble very much the veins of Bodie, being very small and rich at the surface, and most of them what is termed 'blind' ledges. The surface dirt and small veins in the vicinity prospect well in free gold.

"The Warhorse mine, located about five years ago, shows, at a depth of 20 feet, a well-defined ledge of about 3 feet in thickness which yielded, by mill returns, $58.81 per ton. The Reliance Mining Company is on the south extension of the Warhorse, and driving the tunnel to cut the ledge at a point about 900 feet south of the Warhorse shaft. They have cut their tunnel about 250 feet, and expect to have to run 150 feet more to cut the ledge.

"The Red Cloud is situated on the summit of the range. Shaft down 80 feet, showing free gold.

"The Esther Holbrook is about half a mile east of the Red Cloud, and is laid bare by a slide from the side of the mountain, which exposes the ledge for about 100 feet in length and 40 or 50 feet in depth. Near the surface the ledge is about 6 inches wide, and at the deepest point about 3 or 4 feet. From this there have been three or four tons of ore worked in an arastra, yielding $117 per ton; second lot yielding $55 per ton.

"The Morrison, situated near Esther Holbrook, shows a strong ledge at a depth of 15 feet

NEW MEXICO.

The Massachusetts and New Mexico Mining Company announces that it has in process of construction one engine of 100 horse-power, one boiler of 80 horse-power, one boiler of 40 horse-power, one hoisting-engine, pans, settlers, etc., improved compressor and steam drills, which are to be finished by contract June 21st, 1879.

TEXAS.

A dispatch dated Dallas, Texas, May 22d, says: "Great excitement prevails here over the discovery of silver at Brownwood, Texas, 120 miles southeast of here. The assay of ore proves to be a rich one. A specimen of 120 grains of ore contained 75 per cent of silver. A daily paper has been started, claims are being located, and hundreds of people are rushing there."

UTAH.

SILVER REEF DISTRICT.

From the *Miner* of the 10th inst. we condense as follows: The new hoisting-works of the Barbee mine are in place, and working well, consequently materially reducing expense of mining, and increasing the company's output. The mill is being amply supplied from the different ore-bodies. The Buckham Company has levied an assessment, and work has not yet been resumed. The Leeds Company is hoisting but 35 tons second-class ore per day from the Bonanza shaft. Mill is running five stamps, the pan capacity being insufficient for more. Sinking continued in the main shaft, which shows a four-foot vein at bottom.

Thomson & McNally's property has recently changed hands. The Gibson, Manhattan, and Tecumseh are producing well, and look very good generally. The ore-body on the Kinner looks favorable. About 300 tons have accumulated on the dump, which will average over $40 per ton. Work has not yet been resumed on the Neutral mine. Active work has been resumed on the Buckley, and the mill is kept supplied with ore. Work is being pushed forward in the Last Chance and California. The flow of water in the lower workings of the Stormount continues without abatement. The veins of the north drift continue in high-grade ore.

The Salt Lake *Tribune* of the 17th inst. says the smelters are sending forth considerable amounts of bullion. High-grade ores are being received from many of the Nevada mines. In the Cottonwood mines, the water is gradually disappearing, and they are resuming operations. It is anticipated that the Salmon River mines will begin to send ore to Salt Lake City by June 1st.

In the Bingham District the attention of the miners is being almost exclusively directed toward gold-bearing ledges which exist there. The low price of lead created almost a cessation of the operations of the latter class in the silver-lead mines. In the First National mine, at Stockton, a strike has been reported of 50-ounce ore, and the vein six feet in width.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Pumping-Engine, Construction of, including Foundations, etc.; Chief Engineer City Works, Brooklyn, N. Y.	May	26,	1879.
Railway Work; A. C. McKenzie, Secretary, Mount Forest, Ont.	"	28,	"
Cast-Iron Water-Pipes, 110 tons; Board of Water Comm., Providence, R. I.	"	28,	"
Harbor Improvement; S. M. Mansfield, Major of Engineers, Detroit, Mich.	"	"	"
Removal of Broken Rock from Hallett's Point Reef; John Newton, Lt.-Col. Corps of Engineers, Army Building	"	29,	"
Highway; Wm. D. Aldrich, C.E., Manville, R. I.	"	30,	"
Erection of a State Capitol: James Smith, Secretary of State, Topeka, Kansas.	June	2,	"
Repairs for Old Pier; John M. Wilson, Major of Engineers, Cleveland, O.	"	"	"
Building; David W. Gibbs, Xenia, O.	"	3,	"
Bridge; James F. Manley, Auditor, Bloomington, Ia.	"	4,	"
Bridge; Building Wagon-Bridge (Iron) over Cedar River, Iowa, 4 spans, 140 feet each; R. H. McCampbell, Auditor, Muscatine, Iowa	"	"	"
Lighting, Care, etc., of Public Lamps in East End, South Side, and West End Districts, Pittsburg; Wm. C. McCarthy, Comm.	"	6,	"
Metal-Work of Three Light-Houses; O. E. Babcock, Major of Engineers, U. S. A., Office of Light-House Board, Baltimore	"	7,	"
Bridge; James W. Lawson, New Hamburg, N. Y.	"	10,	"
Bridges; E. Kiesewetter, Auditor, Columbus, O.	"	13,	"
Bridge; W. K. Sproule, Auditor, Indianapolis, Ind.	"	16,	"
Construction of Officers' Quarters, Sackett's Harbor, N. Y.; Alex. J. Perry, Dep. Quartermaster-General, Department of the East, Governor's Island	"	16,	"
Wrapping-Paper, Letter-Scales, etc.; D. M. Key, Postmaster-General, Washington, D. C.	"	19,	"
Designs for Pumping-Machinery, for which premiums will be paid, as follows: 1st best design, $500; 2d best, $300; 3d best, $200; W. E. Cutshaw, City Engineer, Richmond, Va.	July	1,	
100,000 tons of Steel Rails to be Manufactured in New Zealand; John Knowles, Under Secretary for Public Works, Wellington, New Zealand.	Sept.	30,	"

The Hamilton pumping-engines at Burlington Beach, Canada, are taxed to their full capacity to keep up the water supply for the city. The quantity of water now taken from the high-level reservoir, and that used to water the streets, make the citizens talk of the probable need of enlarging the machinery.

METAL LIGHT-HOUSES TO BE BUILT.—Proposals have been called for by the Light-House Board, to be received at the office in Baltimore, for furnishing materials and labor for the completion of the metal work of three light-houses, one for Hooper's Straits, Chesapeake Bay; one for Jones Island, Tangier Sound; and the other for Laurel Point, Albemarle Sound. The drawings and specifications can be obtained at Baltimore from Mayor O. E. Babcock. Bids from manufacturers only will be received.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending May 17th, and years from January 1st:

TONS OF 2240 LBS.	1879.		1878.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	66,605	1,025,585	27,788	739,652
D. L. & W. RR. Co.	*	1,116,544	.....	588,382
Penn. Coal Co.....	34,965	459,739	21,246	190,566
L. V. RR. Co.....	15,367	322,337	27,848	263,430
P. & N. Y. RR. Co..	1,174	7,647	745	9,380
C. RR. of N. J	33,766	630,818	12,995	297,306
Penn. Canal Co.....	.....	.....	13,957	56,504
	151,877	3,562,670	104,579	2,145,220
Lehigh Region.				
L. V. RR. Co.....	84,788	1,026,625	46,925	760,074
C. RR. of N. J.....	44,328	732,616	31,116	376,656
S. H. & W. B. RR..	.....	8,665	171	7,496
	129,116	1,767,906	78,212	1,144,226
Schuylkill Region.				
P. & R. RR. Co	161,613	2,425,418	191,316	1,369,056
Shamokin & Lykens Val.....	21,958	270,388	16,455	188,255
	183,571	2,695,806	207,771	1,557,311
Sullivan Region.				
Sul. & Erie RR. Co.	765	18,634	825	11,277
Total	465,329	8,045,016	391,387	4,858,034
Increase.....	.....	.....	.....	.....
Decrease	.....	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

* This report was not received this week.

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads, amounts to 66,455 tons, as compared with the corresponding period in 1878.

Belvidere Delaware Railroad Report for week ending May 17th:

	Week.	Year. 1879.	Year 1878.
Coal for shipment at Coal Port (Trenton)	414	414	649
Coal for shipment at South Amboy	11,356	170,253	172,613
Coal for distribution.....	5,546	123,023	60,576
Coal for Company's use	985	31,686	30,924

Coals Cleared on the Canals of the State of New York for the week ending May 14th, and year from the opening of navigation:

Tons of 2000 lbs.	1879.		1878.	
	Week.	Year.	Week.	Year.
Anthracite.....	50,758	50,758	12,121	12,121
Bituminous.....	2,925	2,925	5,639	5,639
Total amount cleared..	53,683	53,683	17,760	17,760

The receipts of coal at Providence, from January 1st to May 17th, were as follows:

	1879.	1878.
From Philadelphia...	23,742	33,014
From New York.....	135,421	89,925
Soft coal.....	21,643	21,483
Total.....	180,806	144,422

Perth Amboy Business:	Tons.
Received for the week	41,802
Shipped for the week....	36,513
On hand May 17th.....	153,560

Statement of Coal Business at Fair Haven for the week ending May 17th:

	Tons.
Receipts.	124
Shipments.....	3,136
On hand May 17th.....	36,022

The Production of Bituminous Coal for the week ending May 17th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lb	33,576	487,121
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	5,847	134,229
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	3,136	53,617
*East Broad Top.....	1,223	23,677
Clearfield Region, Pa.		
*Snow Shoe.....	732	8,944
*Tyrone and Clearfield..... 26,288		478,321
Allegheny Region, Pa.		
*Pennsylvania R. R	3,347	63,692
Pittsburg Region, Pa.		
*West Penn R. R.....	3,330	70,652
*Southwest Penn. R. R.....	878	13,564
* Penn & Westmoreland gas coal, Pa. R. R..... 13,060		281,607
*Pennsylvania R. R.....	8,116	144,549

*For the week ending May 17th.

The Production of Coke for the week ending May 17th:

Tons of 2000 lbs.	Week	Year.
West Penn. R. R....	1,342	33,870
Southwest Penn. R. R.....16,089		287,646
Penn. & Westmoreland Region, Pa. R. R.	1,902	40,488
Pittsburg, Penn. R. R.....	3,223	55,428
Penn. R. R. (Allegheny Region).....	591	16,059
Total..... 23,147		433,491

THE COAL TRADE REVIEW.

NEW YORK, Friday Evening, May 23, 1879.

Anthracite.

There is not so good a demand as there was, but still it is very large. Prices, however, do not improve. There is an effort being made to bring about a concerted action to advance them. There is a great deal of ill-feeling and jealousy among the companies and the wildest competition in the trade, especially in the West and in the upper and western portions of this State.

It is thought that June will be a fairly busy month, but that there will be a lull in July. Some districts are very poorly supplied with coal, especially those that depend on the canals for transportation.

The Delaware, Lackawanna & Western RR. Company announces 100,000 tons of coal for sale next Wednesday. A strong effort was made to have the company omit its sale or to reduce the quantity to 50,000 tons, but to no avail.

It is said that the miners at the Upper Lehigh, Sandy Run, Jeddo, Highland, and Harleigh mines are on strike. Although the strike is local in its character, yet we think that it indicates a restlessness on the part of the men, that may break out in greater force at any moment and give an entirely new aspect to the trade.

The *Tribune* has published the following correspondent. The fact that it expresses the views of the presience of the greatest coal carrying and producing company makes it of interest to all connected with the coal trade:

PHILADELPHIA, April 17, 1879.

John Livingston, Esq., No. 154 West Fourteenth street, New York:

MY DEAR SIR: I have your favor of the 15th inst., and can only say that we were nearly driven into bankruptcy by combination with the other companies in the past, and as we are doing very well in an independent position (our profits by the end of this month will be about $1,000,000 ahead of what they were last year), I think, so far as our own company is concerned, our interest is decidedly to remain in an independent position. The New York companies who are needlessly sacrificing coal in order to frighten us into a combination will get tired of it in a few weeks, especially in view of the fact that they are selling from 50 to 90 per cent of their product as against 10 per cent of ours in the market which they made so bad; and as there is nothing at all in the present condition of the coal trade with reference to supply and demand to prevent our obtaining $1 or $1.50 per ton more for coal than we are now getting, I feel quite confident that, as soon as the two New York companies discover the folly of their attempt to control us, they will cease their suicidal policy and be willing to take the higher prices which the present condition of the coal market abundantly justifies.

Very respectfully, F. B. GOWEN, President.

PHILADELPHIA, April 21, 1879.

John Livingston, Esq., No. 154 West Fourteenth street, New York:

DEAR SIR: I have to acknowledge receipt of your favor of the 19th inst., and am very much obliged to you for the advice so kindly tendered to me; but, as my experience in the coal trade has been very much greater than yours, and as I differ with you in all the facts stated by you, and am firmly convinced that our present course will greatly inure to the profit of our shareholders as compared with any combination such as you advise, I trust you will pardon me from entering into any further correspondence with you upon the subject, and permit me and the Board of Managers, who are elected by our stockholders, to control the management of our company as it may seem in our judgments best to the interest of those we represent.

I can say that the only difficulty we have is the desire of other people to manage the business. We yielded to this last year, and placed the control of our coal trade in the hands of a board in which we had a vote of only 28⅝ in 100. This management of our affairs by other people last year nearly drove us to the verge of bankruptcy, and I am glad to say that since we have resumed the control of our own business we have largely increased in profits over any year during the last four or five years. You will, of course, agree with me that it is not part of the business of the Reading Railroad Company to make the traffic of other companies profitable, and I trust you will acquit me of any discourtesy in most peremptorily declining to follow the advice so kindly tendered in your letter.

Very respectfully, F. B. GOWEN, President.

Our Philadelphia correspondent, under date of May 22d, says:

The trade is active and orders pressing, time buyers expecting an advance next month, which, however, it will be difficult to obtain, unless all join and agree to curtail production, if orders do not come quick enough, until the demand will equal the supply. Freights are $1.55@$1.60 to Boston, and vessels continue quite scarce, particularly small ones. The views of Eastern buyers about probabilities as to freights this season have, so far, been nothing but a series of blunders, and many orders at limited freights will be canceled the moment coal advances.

Bituminous.

There is nothing worthy of note in the market for this class of coal. The demand is very much reduced, and prices show no improvement whatever. On Tuesday the first spike was driven in the Pennsylvania Railroad in Maryland. This road, which is but six miles in length, will connect Cumberland with the Pennsylvania system of railroads. The completion of the George's Creek & Cumberland RR., connecting with the Pennsylvania RR. in Maryland, will give the coal field an independent outlet, when both Cumberland and her coal interests will assume an independent position, and from which time the renewal of prosperity for both will date.

Our Buffalo correspondent writes May 21st:

"This last week anthracite coal stiffened in price somewhat, especially upon retail orders. The price now is $3.25 for grate and egg, and $3.50 for stove and nut, delivered.

"The Police Commissioners invited proposals for the supply of the various stations. Three bidders only tendered; it was awarded at grate and egg, $2.94; stove, $3.04; chestnut, $2.92 per ton of 2000 lbs., delivered at the stations as needed. Probably one half can be put in now balance next winter.

"The f. o. b. price is firmer also, though not much advance can be quoted, but there is not the same desire to make sales at any and all hazards as there hasbeen.

"Bituminous coals and coke unchanged."

San Francisco. May 1, 1879.

COAL.—The San Francisco *Commercial Herald* of May 15th says:

Imports from January 1st to May 1st:

	Tons.		Tons.
Anthracite	3,268	Cumberland.....	887
Australian	4,478	Seattle.....	49,003
Coos Bay.....	13,280	Tacoma	845
Carbondale	746	Vancouver	50,674
Carmel Bay.....	270		

Last week we referred to a sale of 300 tons anthracite by ship, at $8.50 ₱ ton. This low price must therefore be considered as the ruling rate for Lehigh and Pittston by the cargo—rates that do not by any means cover cost and charges. We see that the ship Solitaire is loading 2200 tons Cumberland at Baltimore for this port. Arrivals here from Sydney, 77 days, with 1013 tons Shale for the Gas Company; the schr. Emma, from Coos Bay, with 410 tons; the Continental, from New York, with 850 tons. The ship Baring Bros., from Nanaimo, brought 3500 tons; schr. Premier, 390 tons Coos Bay.

The following gives the comparative imports and receipts for April, 1878-9:

	1878. Tons.	1879. Tons.
Foreign:		
English.....	200	....
Vancouver.....	7,960	13,365
Australian.....	2,478	4,478
Eastern:		
Anthracite	1,407	1,295
Cumberland	83	261
Domestic:		
Mount Diablo.....	10,678	10,356
Coos Bay.....	1,857	4,177
Seattle.....	7,150	14,874
Carbondale	....	293
Carmel Bay.....	....	70
Bellingham Bay.....	325	....
Rocky Mountain.....	320	....
Totals.....	32,458	49,169
Previously since January 1st.....	110,403	112,097
Totals since January 1st.....	142,861	161,266
Increase this year	18,495	

Pittsburg. May 22, 1879.

COAL.—All activity in the coal business here depends upon high water. When the rivers fail too low for this kind of transportation, the boats devoted to it are filled in a few days and mining necessarily stops. Then the business comes to a stand-still and remains so until the waters rise again. It has been in this condition for about two weeks. All the coal craft in port has been loaded. It is estimated that about 13,000,000 bushels, or 500,000 tons, are now on board boats and barges, ready to be sent off on the first freshet. Until this comes, nothing can be done but to wait patiently. The collieries are silent, and all the seats of operation when the industry is actively prosecuted wear the contrasted aspect of desolation. At the present time this is especially observable, as the business is less remunerative than ever before, owing to the enlarged development and more active competition of the Kanawha and other coal districts below. Like men engaged in a pursuit of doubtful profit, the operators appear listless and indifferent; nor is it probable that they would re-invest where they are, were their capital safely withdrawn. Such are the vicissitudes of trade; unforeseen obstructions are ever liable to rise in its way and upset the plans of the keenest observers. As if to vex them beyond endurance, the miners with fatal blindness, struck for unfair pay—for the lion's share—and enforced their demand, exacting more than is given in the districts below, from whence coal can be more cheaply delivered in the markets supplied in common. We make no change in quotations, though the low water has occasioned a slight advance, which will not continue after a rise. The advance is but one cent in Cincinnati and Louisville, and four cents per barrel in New Orleans

PRICES AT PITTSBURG.

Wholesale, on board.	4	cts. per bushel,	$1.06 per ton
Retail, delivered.	...6@ 7	" "	1.85 "

AT CINCINNATI.

Wholesale, on board.....	7	cts. per bushel,	$1.85 per ton
Retail, delivered.....	8½	" "	2.25 "

AT LOUISVILLE.

Wholesale, on board.....	7	cts. per bushel,	$1.85 per ton
Retail, delivered..... ..	8½	" "	2.25 "

AT NEW ORLEANS.

Wholesale, on board.....28		cts. per barrel,	$2.62 per ton
Retail, delivered.....40		" "	3.87 "

Bushels are rated among dealers here at 76 lbs.—26⅓ bushels make a ton of 2000 lbs. nearly.

The barrel that rules the coal measurement in New Orleans contains 2 4-7 bushels of 80 lbs. each, making about 200 lbs. Nine and two thirds of these barrels weigh a ton, within a small fraction.

COKE.—The product of the Connellsville district still keeps very evenly up to about 30,000 tons a week, which meets an equal consumption, that takes it all away and uses it in metallurgical processes, from New England to Utah. Quotations remain steady—$1.15 to $1.30 per ton of 2000 lbs. on board cars at ovens.—*American Manufacturer.*

New York.

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
§Lackawana, at Weehawken	2 20	2 20	2 20	2 25	2 55	2 50
*Pittston, at Newburg	2 15	2 15	2 15	2 20	2 35	2 35
Honey Brook Lehigh	3 00	.....	2 60	2 60	2 60	2 40
Wilkes-Barre at Pt. Johnson	2 15	2 15	2 25	2 30	2 60	2 40
Plymouth R. A. at P. John.	.....	.....	2 25	2 40	2 85	2 50
LEHIGH COAL.						
†Spring Mt. at P. Amboy	3 25	.....	2 85	2 85	2 85	2 75
Old Company L., at Eliz'p't	3 30	.....	2 75	2 75	2 60	2 50
Cross Creek, at Port John.	3 00	2 75	2 75	2 75	2 75	2 65
†Buck M. at Eliz. Pt. or S. A.	3 00	2 75	2 75	2 75	2 85	2 75
Fulton	3 30	.....	2 75	2 75	2 60	2 50
SCHUYLKILL COAL. ‡*Alongside at N.Y. Harbor.*						
Hard White Ash	.....	.....	.....	.....	.....	.....
Free-Burning W. A	.....	.....	.....	.....	.....	.....
Schuylkill Red Ash	.....	.....	.....	.....	.....	.....
Lorberry	.....	.....	.....	.....	.....	.....
Lykens Valley Vein	.....	.....	.....	.....	.....	.....

* Fifty cents per ton additional for delivery in New York, and fifteen cents per ton additional for delivery at Weehawken.

† These prices are given by Whitney, McCreary & Kemmerer.

‡ On coal delivered f. o. b., at shipping wharf at Williamsburg, the current rate of harbor freight will be allowed from above prices.

§ F. o. b. at Weehawken, N. J.

Wholesale Prices of Bituminous Coal.

Per ton of 2240 lbs.	At the Shipping Ports.	Alongside at New York.
DOMESTIC GAS COALS.		
Westmoreland and Penn	$4.25	.....
At Greenwich, Philadelphia	.....	$5.50
At S. Amboy	5.00	5 50
Kanawha at Richmond	4.10	5.40
Youghiogheny, Waverly Co., at Balt	4.00	5.65
Murphy Run, West Va., at Baltimore	3.75	5.85
Fairmount, West Va., " "	3 75	5.70
Newburg Orrel, Md. " "	3.75	6.00
Cannelton & Peytona Cannel, West Va.	.....	10.00
" Splint " at Richmond	6.00	7.00
" Gas Coal at Richmond	4.00	5.65
MANUFACTURING AND STEAM COALS.		
Cumberland at G'n & Alexandria	2.75@2.90	4.35@4.50
Cumberland, at Baltimore	2.90@3.00	4.35@4.50
Cl'rf'd "Eureka" and "Franklin."		
At mines	0.75	.....
At Baltimore & Phila	3.25	4.50

	Sterling.	Am. cur'ncy
FOREIGN GAS COALS.		
Newcastle, at Newcastle-on-Tyne	7s.6d.	$2 50@ $3.50
Liv. House Orrel, at Liv.	25s.	13.00
Ince Hall Cannel "	35s.6d.	18.00
" Gas Cannel "	25s.6d.	10 00@ 10.50
Scotch Gas Cannel, at Glasgow, nominal	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1.60	.....
Caledonia, at Pt. Caledonia	1.50	$4.25
Glace Bay at Glace Bay	1.50	4.00
Lingan, at Lingan Bay	1.50	.....
Intern'l Mines, at Sydney	1.60	.....
Pictou, Vale Mines, at Pictou	2.00	4.70

Retail Prices.

Per ton of 2000 lbs.

Anthracite.	G. & Egg.	Stove.	Chest.
Pittston coal delivered	$3.50	$3.75	$3.50
Lack. coal, delivered below 59th St.	3.25	3.50	3 25

IRON MARKET REVIEW.

NEW YORK, Friday Evening, May 23, 1879.

American Pig.—We learn of no important business, although there is a liberal amount of sales in a small way going on constantly. There are, however, considerable inquiries, and prices are very firm. Several additional furnaces have gone into blast, and others are preparing to, but they will mostly run on Bessemer iron, for which there is an extraordinary demand. A quiet term for perhaps the next 60 days is generally expected, but a very large business is looked for in the fall. The business with the West, which the Eastern furnaces are permitted to do owing to the superiority of their iron and the low freights that are prevailing, is steadily increasing in importance. We quote No. 1 Foundry at $18 and $19; No. 2 at $17, and Forge $16.

Scotch Pig.—We have again to note large arrivals, amounting to about 1000 tons. Sales of as much as 600 tons, on private terms, are reported. The market is dull, and prices are weak, but not quotably lower, and are as follows: Eglinton, $19@$19.50; Coltness, $22; Gartsherrie, $21.50.

According to Messrs. John E. Swan & Brothers' circular, dated at Glasgow, May 9th, there were 86 furnaces in blast, against 95 a year previous. The quantity of iron had increased from 199,417 tons, at Christmas, to 256,587 tons, at thedate of their report having increased to 3863 tons for the week ending at that date. The shipments to May 3d showed an increase of 40,256 tons, as compared with those to the same date in 1878. The imports of Middlesbrough pig-iron had decreased in the same comparison 19,388 tons. The quotations for No. 1 Scotch iron were as follows: Gartsherrie, 47s. 3d.; Coltness, 53s. 6d.; Langloan, 50s.; Summerlee, 45s.; Glengarnock, 45s. 6d.; Eglinton, 43s. Middlesbrough pig-iron was f. o. b. Tees quoted nominally as follows: No. 1 Foundry, 41s. 6d.; No. 2, 39s. 6d.; No. 3, 37s. 6d.; No. 4, 35s. 6d., and Forge, 35s.

Rails.—We note sales of 3000 tons of steel, at price equal to $45@$45.25 here, delivery during fall; also 500 tons, at $45 here. We learn of nothing in iron rails. These are held down in price by the ability to lay down English rails of equal quality to American at some points upon equal or slightly better terms. We quote iron rails at $36@$37.50 here.

Old Rails.—These are scarce and firm, being quoted at $22@$22.50. There are negotiations pending and considerable quantities of foreign offered. A very small advance would bring English rails here. The probabilities are, that foreign lots will be sent here on a venture.

Wrought Scrap is dull, with a weakening tendency. We quote at $23@$24.

At Cincinnati, the market remains as last reported, excepting a very slight advance in some brands of pig-iron.

Our Baltimore correspondent writes, May 19th:

"The iron market shows but little change; the demand is fair and prices unchanged."

The following is from Pittsburg, dated May 20th:

"Transactions in pig-iron are very light, owing to the unsettled condition of the labor question in this vicinity. The possibility that many of the mills will remain idle this summer on account of the refusal of the puddlers to accept such wages as rule elsewhere, has already exercised a very depressing influence on the market, although, as yet, prices are unchanged."

Messrs. King, Gilbert & Warner, of Columbus, write, May 20th, as follows:

"The pig-iron market remains in about the same condition as reported last week. The demand continues moderate. We do not look for any further advance in prices during the summer months, as there is always a falling-off in the demand in June and July. Quotations remain unchanged."

The following, of the same date, is from Louisville:

"The market for pig-iron is without animation, but notwithstanding, the volume of sales foots up astonishingly large for this season of the year, and it looks as though the current demand would absorb the production. Quotations are unchanged."

FREIGHTS.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs. to and from foreign and domestic ports, for four weeks ending May 21st, 1879, are given below.

DATE.	From	To	Cargo.	R'te
Apr. 25	Baltimore	San Francisco	Coal	7.00
" 25	Baltimore	St. Thomas	Coal	2.75
" 25	Baltimore	Martinique	Coal	2.90
" 25	Baltimore	Havana	Coal	1.50
" 25	Georgetown, D. C.	Aspinwall	Coal	4.50
" 25	Baltimore	St. Jago	Coal	2.00
" 25	New York	Wilmington	*	1.75
" 25	Cow Bay	New York	Coal	1.50
" 25	New York	Gloucester	Salt	4½c
" 25	New York	City Point	RR. iron	1.20
" 25	New York	Richmond	*	1.25
" 25	New York	Richmond	Pig iron	90
" 25	New York	Richmond	†	1.00
" 29	New York	Baltimore	Guano	1.50
" 29	New Haven	Richmond	†	1.25
May 3	New York	Charleston	RR. iron	1.50
" 3	Manhattanville	Weymouth	Pig-iron	1.70
" 3	Hoboken	Boston	Pig-iron	1.50
" 7	New York	Richmond	Guano	1 00
" 7	Elizabethport	Richmond	Pig-iron	80
" 7	New York	Philadelphia	‡	3c
" 7	Perth Amboy	City Point	§	1.20
" 10	New York	Bremen	Salt	2s8
" 10	Baltimore	Liverpool	Coal	7.00
" 10	New York	Savannah	RR. iron	1.75
" 10	New York	Richmond	RR. iron	1.00
" 10	New York	Providence	RR. iron	1.00
" 10	Perth Amboy	Boston	Pig-iron	1.50
" 10	Port Caledonia	Cuba	Coal	3.50
" 10	Bonair	Providence	Salt	9c
" 16	Charleston	Weymouth	‖	2.25
" 16	Elizabethport	Boston	Pig-iron	1.60
" 16	Hoboken	Plymouth	Pig-iron	¶
" 16	New York	Galveston	Salt	**
" 16	New York	Richmond	†	1.00
" 16	Perth Amboy	Boston	Iron ore	1.65
" 16	Georgetown, D. C.	Aspinwall	Coal	4.25
" 17	Baltimore	San Francisco	Coal	7.00
" 21	Barren Island	Baltimore	*	1.25
" 21	Perth Amboy	City Point	§	1.10
" 21	Hudson	Boston	Pig-iron	2.25

* Phosphate. † Old rails. ‡ Salt in bulk. § Steel rails. ‖ Phosphate rock. ¶ $1.60 and discharging, ** 26c. per 200-lb. sack.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to May 23d, 1879

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Alexandria	90	.....	.....
Baltimore	60†@70	.....	.....
Bangor	.....	.....	1.35
Bath, Me	1.50	.....	1.35
Beverly	.....	.....	.....
Boston, Mass	1.50§	.....	1.35
Bridgeport, Conn.	85	.....	60
Bristol, R. I.	.....	.....	.....
Brooklyn	.....	.....	.....
Cambridge, Mass.	1.70	.....	1.35
Cambridgeport	1.90	.....	.....
Charleston	1.20	.....	.....
Charlestown	.....	.....	1.35
Chelsea	.....	.....	1.35
City Point	75	.....	.....
Coh'sset Narrows	1.65	.....	.....
Coosaw, S. C.	.....	.....	.....
Danversport	1.55@1.65†	.....	1.35†
East Cambridge	.....	.....	1.35
Fall River	1.30	.....	1.00
Fortress Monroe	.....	.....	.....
Fredericksburg	.....	.....	.....
Galveston	.....	.....	.....
Gardner, Me	.....	.....	.....
Georgetown, S.C.	.....	.....	.....
Gloucester	1.60	.....	1.35
Hackensack	.....	.....	.....
Hallowell	1.85	.....	.....
Hartford	1.60	.....	1.05
Hingham	.....	.....	.....
Hyannis	1.50	.....	.....
Jersey City	.....	.....	.....
Lynn	1.65	.....	1.35†
Medford	.....	.....	.....
Milton	.....	.....	.....
Nantucket	1.65	.....	.....
Newbern, N. C.	.....	.....	.....
New Bedford	1.20‖@1.35	.....	1.00
New Brunswick	.....	.....	.....
New Castle, Del.	.....	.....	.....
Newburyport	.....	.....	1.50
New Haven	85@85†	.....	60
New London	.....	.....	85
Newport	1.35	.....	1.00
New York	85	.....	.....
Newark	.....	.....	20‖
Norfolk, Va	70	.....	.....
Norwich	1.35	.....	95
Norwalk, Conn	.....	.....	.....
Pawtucket	1.45‡	.....	1.05‡
Peekskill	.....	.....	.....
Pensacola	.....	.....	.....
Petersburg	.....	.....	.....
Pine Island	.....	.....	.....
Plymouth	1.60†	.....	.....
Portland	.....	.....	1.35
Portsmouth, Va.	72	.....	.....
Portsmouth, N.H.	1.62½	.....	1.50
Providence	1.30	.....	1.00
Quincy Point	.....	.....	.....
Richmond, Me	1.50	.....	.....
Richmond, Va	70	.....	.....
Rockland	.....	.....	.....
Rockport	1.75	.....	.....
Saco	1.90	.....	.....
Sag Harbor	.....	.....	.....
Salem, Mass.	1.50	.....	1.35
Salisbury	.....	.....	.....
Saugus	.....	.....	.....
Savannah	.....	.....	.....
Somerset	.....	.....	1.00
St. John, N. B.	1.10	.....	.....
Stamford	.....	.....	.....
Thomaston	.....	.....	.....
Trenton	.....	.....	.....
Wareham	.....	.....	.....
Washington	85@90	.....	.....
W'lmington, Del.	.....	.....	.....

* And discharging and towing. † And discharging. ‡ And towing. § 3 cents per bridge extra. ‖ Alongside. ¶ 1.50@1.50§@1.60.

METALS.

NEW YORK, Friday Evening, May 23, 1879.

There continues to be a very good consumptive demand, but business in a large way is reduced to almost nothing.

RECEIPTS OF METALS AT NEW YORK FOR THE WEEK ENDING MAY 22D AND YEAR FROM JANUARY 1ST.

	1879.		1878.	
	Week.	Year.	Week.	Year.
Copper, bbls.	97	1,929	594	4,869
Copper, boxes.	.....	.....	.....	113
Copper, cakes	334	6,156	1,602	4,873
Lead, pigs	2,916	94,180	2,040	146,547
Spelter, pieces	720	44,149	531	21,647
Quicksil'r, flasks	.....	200	25	333

Copper.—The sale to manufacturers reported in our last was at 16c., while the sales for export are said to have amounted to over 5000 tons, a small portion as high as 14½c., but mostly at 14c. and less. The business is again very quiet at 16⅛@16¼c., with new supplies expected in a few days. As we have received

nothing overland this year, there should be about 20,000,000 lbs. at the mines, so that the statistical position is not a strong one even yet. Of course the copper is in first hands, but still some of the companies will probably have to realize. There is, however, a very much better feeling among the producers.

From London, under date of May 9th, we have received the following:

"There is no change to note in Chili bars, of which there are sellers at £56 for good ordinary, £56½ for favorite, £57¼ for best marks, with a few buyers of each sort at 10s. per ton less money. We think that, in some instances, business would have been possible at intermediate figures, had purchasers cared to make the bids; but the holders of metal would not offer the stuff at such a reduction, and we therefore have no transactions to report.

"Burra Cake is on sale at £62; Wallaroo at 62½; the quantity, however, obtainable at those rates is exceedingly limited.

"English continues dull; Tough Cake is quoted £60@£61½; Best Select, £61½@£63; India Sheets, £63½@£65; other Sheets £65@£66."

Tin.—There is a good jobbing business doing at the following quotations: Straits, 14⅛@14¼c.; L. & F., 14⅜@14½c.; Refined, 14½c. The market, however, is weakening under large arrivals, among which are about 200 tons of Billiton. The efforts of the Trading Company to establish a market in this country is meeting with considerable opposition from the merchants, and will probably be a disturbing influence for some time to come. It is said that they could not probably get as much as 13½c. for their tin.

From London, under date of May 9th, we have received the following:

"The Dutch Trading Co. announces its sale of Banca for 27th inst., to consist of 23,400 slabs. Foreign is flat in this market, and a small trade is reported in Australian, at 66¾s., cash."

At the Billiton sale, in June, it is said that 13,000 slabs will be offered for sale.

Tin Plates.—There is only a jobbing business. We quote, per box, as follows: Charcoal, bright, Melyn grade, ⅛ X, at $6.37½@$6.25; and Allaway grade, $5.75@$5.87½; charcoal ternes, Allaway grade, $5.12½; coke, bright, B. V. grade, $5.12½, and coke roofing, 14 × 20, $5.

Messrs. Robert Crooks & Co., of Liverpool, under date of May 8th, say of tin and terne plates:

"At date inquiry is confined principally to charcoal ternes, which, with best charcoal tins, are firm. All other descriptions are cheaper, and even at reductions noted are finding few buyers. Makers have not yet agreed on any united action to limit production."

Lead.—We learn of no business; 3½c. is asked, and 3c. bid for round lots. The reports from the mines are not favorable to higher prices.

The Eureka *Leader* of May 10th says:

"The piles of market lead at the Richmond refinery have become so considerable, and extend to such a distance from the building, that a small elevated track has been built out to quite a length, and the bars now go from the refinery by rail.

"The scraps and drippings of bullion at the Richmond furnaces are being collected and piled in dumps. Melted and run into bars, they would form a quantity to make smaller producers envious indeed.

"The Richmond Company shipped to China last week 150 tons of lead, and at the same time sent to New York, per steamer, 145 tons of the same article."

Spelter and Zinc.—We note a sale of 50 tons of spelter, at less than 4⅜c. We quote at 4⅜@4½c. Sheet zinc is dull, at 6@6⅛c.

The Reading (Pa.) *Times and Dispatch* of the 17th inst. says:

"The Lehigh Zinc Company, of South Bethlehem, will in a day or two start two or three of the furnaces in the oxide works, to work upon some ore on hand. It is not now intended that the resumption shall be permanent."

Antimony is quoted at 11⅜c. for Cookson's, and 11¼@11⅜c. for Hallett's.

Quicksilver.—The San Francisco *Commercial Herald* of May 15th says: "The market continues unmoved, and the price 36c. The Oceanic, hence for Hong Kong on the 17th inst., will carry a liberal shipment. Receipts, 969 flasks."

THE BULLION MARKET.

NEW YORK, Friday Evening, May 23, 1879.

The Free Coinage Bill, noted in our last, still occupies a large share of attention in Congress, and the latest outlook favors a defeat of the measure, although its advocates despair by no means. All of the votes on the various sections of the bill are very close, and the struggle is not yet finished.

Production of Comstock Mines.—During the quarter ending March 31st, the total product of seven Comstock mines—California, Consolidated Virginia, Consolidated Imperial, Trojan, Justice, Ophir, and Chollar-Potosi—was 52,829 tons of ore, valued at $2,372,230. The average value per ton was $45. For the same quarter in 1877, the product was $7,549,500; 1878, $10,358,900, showing a heavy falling off this year. The April product of the California mine was as follows: Gold, $249,430.28; silver, $237,736.22; total, $487,166.50. The closing shipments for the last fiscal month were sent down by the Ophir on the 9th inst. The amount was $42,119, making a total for the month of $93,246.

The Hickey gold mine, Montana, shipped on the 7th inst. $5657.29, the product of 120 tons of ore, equal to an average of $47.14 per ton.

The Prescott (Ariz.) *Enterprise* says: "A recent run from the Agua Fria smelter turned out 56 bars of base bullion of 100 pounds each. This bullion comes from the Silver Belt, the only dividend-paying mine in this county, at present."

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of May 17th:

May	5th	Con. Virginia	Nev.	$21,094.63
"	6th	California	"	60,884.19
"	7th	Northern Belle	"	2,637.22
"	7th	Martin White	"	6,139.00
"	9th	Ophir	"	42,109.14
"	9th	Paradise Valley	"	3,831.06
"	10th	Alexander	"	6,087.25
"	11th	Hillside	"	5,100.00
"	12th	Independence	"	5,500.00
"	12th	Argenta	"	18,500.00
"	10th	Standard	Cal	29,248.92
"	9th	Tip Top	Ariz.	23,000.00
"	10th	Ely Mill	Utah	1,300.00
"	13th	Christy	"	5,290.00
"	14th	Silver Reef	"	15,273.17
"	15th	Leeds	"	7,062.45

A recent shipment of 7½ tons of ore from the Silver Gate Consolidated Mining Company, located in the Eureka (Nev.) District, yielded $136 per ton.

The Deer Trail mine, of the Silver Reef (Utah) District, have shipped, to date, over $60,000 worth of ore, mostly extracted in prospecting.

The bullion shipments from Silver Reef, through Wells, Fargo & Co., for the week ending May 10th, aggregate $24,335.29.

For the week ending May 3d, the Manhattan Mining Company reduced 137½ tons of ore, yielding $29,622.

The Silver Connor & Pioneer mine, of Eureka, Nev., has just shipped to the Richmond works 50 tons of very rich ore. The Banner mine has also shipped 70 tons of about $60 ore.

The total shipments of bullion from the Paradise Valley mine for this year up to May 3d were $116,798.

During the first ten days of the present month the Monarch mine of the Atlanta District, Idaho, had shipped $13,783, and the Buffalo mine $3304.

The April output of the Martin White Co. amounted to $67,225.

A recent shipment of $5727 was recently made from the Rye Patch mine of Nevada.

The Tybo Consolidated Mining Company has again changed furnaces, and is running at the usual rate, the bullion product keeping up to the standard of recent production.

The Hillside Mining Company had some trouble with its furnace recently, which did not run steadily, producing for the week only $10,100. The ore at the bottom of the mine is improving in quality, and showing up large quantities of splendid ore. The furnace is now running well.

Ten tons of Silver King concentrations were recently forwarded to San Francisco. This shipment is probably worth over $20,000.

The Alexander Mining Company shipped from Belmont, Nev., on the 3d of May bullion valued at $9958.27.

The Highbridge Mining Company has resumed work on its mine. The company shipped, April 27th, bullion valued at $7578.19.

California Mine Dividends.—The *Stock Report* of the 14th inst. says:

"It is now three years since the California mine commenced paying dividends, the first having been disbursed in May, 1876. On the 6th inst. the Trustees met and declared the thirty-first dividend. For two years and four months there was not a single interruption in these dividends, though for the last two months of that period the amount disbursed was reduced one half. Then came a cessation of dividends for three months, followed with a resumption for two months at the reduced rate; then another cessation of three months, followed by a second resumption, but at a further reduction of one half of the amount previously paid. In other words, the California mine has paid 26 dividends of $2 per share, and four of $1 per share. There is now one pending of 50c. per share, to be paid on the 16th. Here is the dividend record of the mine for the past three years, with the first dividend announcement on account of the fourth year:

	No.	Amount.
First year	12	$12,960,000
Second year	12	12,960,000
Third year	6	4,320,000
Fourth year	1	270,000
Total	31	$30,510,000

The Napa Consolidated Quicksilver Mining Company has paid five dividends, as follows:

Date.	Per share.	Amount.
August 15th, 1878	$0.10	$10,000
September 14th	10	10,000
November 9th	10	10,000
December 7th	10	10,000
April 30th, 1879	10	10,000
Total	$0.50	$50,000

The Bodie Bank has declared a dividend of 2 per cent.

The Silver Market.—WASHINGTON, May 21.—The Secretary of the Treasury to-day accepted bids for 50,000 ounces of silver for the New Orleans Mint, and 300,000 ounces for the Mint at San Francisco. There has been an advance of ¼d. in the London market, due probably to the reported action of the German government in relation to the sale of silver bullion, and a higher price was paid by the Treasury for to-day's purchases.

Exports of Gold and Silver from New York.

Week ending May 17th	$593,665
Corresponding week last year	93,584
Since Jan. 1st this year	7,537,155
Corresponding period last year	7,387,516

Of the above amount over a half million was in silver bars consigned to bankers in London.

Gold Interest Paid Out by the Treasury.

Week ending May 17th	$532,995
Corresponding week last year	685,026
Since Jan. 1st this year	25,883,545
Corresponding period last year	27,236,430

The United States Treasury now holds about $146,000,000 gold coin reserve and nearly $24,000,000 standard silver dollars, in addition to $6,500,000 in fractional silver.

The Silver Question in Germany.—BERLIN, May 20.—The German government has resolved to restrict the sales of silver temporarily, and may possibly suspend them altogether. It is believed that this indicates a disposition to increase the silver coinage.

BERLIN, May 21.—The *Bourse Gazette* says the suspension of the sales of silver is solely attributable to the low price, which causes a loss of 15 per cent to the government.

FINANCIAL.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore, for the week ending the 23d inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
American Coal Co.	$25	.....	.....	22	.....
St. L., I. M. & S. R. Co.	100	29⅛	27⅝	28⅝	9,650
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co.	50	.....	.....	67	.....
*Penn. Salt Mf'g Co.	50	.....	.....	75	100
*Westm'land C. Co.	50	.....	.....	53	.....
*Buck Mt. Coal Co.	50	.....	.....	40	.....
*Schuyl. Nav. Co.	50	.....	.....	.....	.....
†B. & O. RR. Co. 1st pf	.....	.....	.....	110	139
†B. & O. RR. Co. 2d pf	100	.....	.....	101½	.....
" " " com	90	109½	106	109½	820
†George's C'k C. Co	100	.....	.....	55	.....
†S. Clara M'g Co.	100	.....	.....	4	.....
†Atlantic Coal Co.	10	.....	.....	76	.....

BONDS.	Prince'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1891	J. & D.	.....	.....	.....
" " " 2d mtge.	1882	M. & S.	.....	.....	.....
N. J. C., 1st mtge. new	1890	F. & A.	116¾	.....	$2,000
" " " 1st mtge., con	1899	Q.	94⅝	92⅛	*445,000
" " " convt.	1902	M. & N.	95	92¾	*172,000
Lehigh & W. B., con	1899	Q.	86½	85	†489,000
Am. Dock & Imp. 7s	.....	J. & J.	74	72	4,000
St. L. I. M. & S., 1st mt	1892	F. & A.	.....	.....	.....
Ches. & O., 1st mtge	1899	M. & N.	.....	.....	.....
D. & H. C. Co., 1stm. rg	1884	J. & J.	103⅛	103¼	13,000
" " " " "	1891	J. & J.	103⅜	103½	26,000
" " " " m. loan cp	1894	A. & O.	.....	.....	.....
" " " " rg.	1894	A. & O.	104	.....	2,000
" " " " new mge.	.....	.....	.....	.....	.....
*L. V. R., 1stm. 6s. cp.	1898	J. & D.	.....	116	.....
" " " rg.	1898	J. & D.	.....	116	.....
" " " 2d m. 7s, rg.	1910	M. & S.	.....	120	.....
" " " con. m. 6s, rg	1823	J. & D.	107	.....	12,300
" " " 6s cp.	1923	J. & D.	.....	.....	.....
*Pa. RR., 1st m. 6s, cp	1880	J. & J.	105	.....	1,000
" " g. m., 6s, cp.	1910	J. & J.	.....	114	.....
" " " 6s, rg.	1910	A. & O.	115½	.....	3,000
" " con. m. 6s, rg.	1905	Q.	108	.....	3,000
" " " 6s, cp.	1905	J. & D.	.....	108	.....
" " new loan, 5s	.....	.....	112¾	.....	10,000
*P. & R. R., 1st m. 6s, R. C. 43-44	1880	J. & J.	.....	.....	.....
P. & R. R., 1st m. 6s, R. C. 48-49	1880	J. & J.	.....	.....	.....
P. & R. R., 2d m. 7s cp	1893	A. & O.	.....	.....	.....
" " " scrip	1882	J. & J.	75	70	20,320
" " " in. m. 7s, cp	1896	J. & D.	76	75	17,000
" " " c. m. 7s, cp.	1911	J. & D.	113	112	18,000
" " " 7s. rg.	1911	J. & D.	114	112½	7,000
" " " cvt. 7s, R. C	1893	J. & J.	70	69	7,000
" " C. & I. Co., Deb 7s, R. C.	1892	M. & S.	.....	.....	.....
& R. C. & I. Co., m. 7s, R. C.	'92-3	various	.....	.....	.....
*L. Nav. Co., 6s, rg. m.	1884	J & Q.	107	.....	1,300
" " RR., rg. m.	1897	F. & Q.	.....	107	.....
" " cvt. co. G. R.	1894	M. & S.	.....	.....	.....
" " " Gold R. C.	1897	J. & D.	103⅓	100¼	19,500
" " con. m. 7s, rg.	1911	J. & D.	90	.....	24,000
*P. & N. Y. C., 7s, R. C.	1896 / 1906	J. & D.	.....	122	.....
*Pa Canal, 6s. cp.	1910	J. & J.	75	.....	10,000
*Schuyl. Nav., 1st m. 6s. rg	1897	M. & Q.	.....	97	.....
*Sus. Coal, 6s, rg	1911	J. & J.	.....	.....	.....
†Balt. & O. RR., 6s	1880	J. & J.	.....	.....	.....
" " " " 6s	1885	A. & O.	108	107½	2,000

Total transactions for the week $1,314,420

* Assented. †$487,000 assented, selling at from 58⅛@62.

Gold and Silver Stocks.

NEW YORK, Friday Evening, May 23, 1879.

The number of shares sold shows a falling off, but this is owing to a neglect of the "fancies." The money value of the transactions is probably fully as great, if not greater than last week.

There is an intense interest shown in the Comstock and Bodie mines, and the points are taken up all around. The sales of Bodie amount to 810 shares at $13@$23. This stock sold at $18¾ yesterday, and advanced to $23 to-day. Advices by mail from the Pacific coast have led us to expect some developments from this mine soon. The sales of California have amounted to 2600 shares, at $7⅜@$8¾, the latter figure being reached to-day. Its "other half," Consolidated Virginia, has been active to a marked degree the sales amount-

ing to 13,515 shares, at $8@$6¾, the latter price being reached to day. Crown Point records sales of 825 shares, at $5@$6, with an advancing tendency. Eureka Consolidated was dealt in last Saturday to the extent of 100 shares, at $18½. 100 shares of Gould & Curry were sold to-day, at $9. Grand Prize declined from $3.75 to $3 on sales of 220 shares, and there have been no dealings since Wednesday. Ten shares of Hale & Norcross sold at $15. The dealings in Independence have amounted to 910 shares at $2.50@$2.75. One hundred shares of Leeds sold at 80c. Bechtel records 100 shares, at $1.50. Consolidated Imperial has stepped into great prominence, the sales amounting to 15,710 shares. Consolidated Pacific began to attract attention on Tuesday, since when 500 shares have been sold at $3.40@$4.10, the latter figure being reached to-day on the announcement of a strike. Julia has been very quiet, the dealings being confined to 150 shares to-day; 1100 shares of Leviathan were sold at 60@75c. Five shares of Mexican sold on Saturday, at $36. A sale of 50 shares of Silver Hill was made during the week at 2¼. Tip Top is very much neglected, the lack of confidence in the management keeping off speculators and investors. The sales for the week only amount to 600 shares, at 80@75c. Tuscarora records odd sales, amounting to 700 shares, at 11@12c. Bulwer has made its appearance, with sales of 160 shares, at $14@$12¾. Caledonia, a Black Hills mine, has had dealings amounting to 370 shares, at $4.25@$4.75. Yellow Jacket is attracting considerable attention, the sales here amounting to 505 shares, at $22@$19½.

The transactions in mining stocks at the New York Stock Exchange have been only moderate. Homestake has ranged from $34½@$35, with sales of 615 shares. There have been sold but 20 shares of Ontario, at $39. In Standard the dealings have amounted to 3600 shares, at $29@$33; Mariposa Common has had dealings of 700 shares at $7@$6½. Quicksilver Preferred was active early in the week, when 1800 shares were sold at $44¼@40½. The Common stock records 762 shares at 14@15½. Sutro Tunnel has had dealings amounting to 12,355 shares, at $4½@$4⅞.

The better class of stocks at the Mining Exchange continue to receive a large amount of attention. Findley records 6100 shares, at 58@54c., with no feature. Hukill is attracting much more attention, the sales for the week amounting to 1100 shares, at $2.50@$2.75. The reports from the mine are more encouraging than ever before. Leadville continues to be the favorite, the sales amounting to 13,590 shares, at $3.90@$3.35. Moose has large dealings, amounting to 9050 shares, at $3.20@$2.90. New York & Colorado has become very quiet, the sales amounting to but 100 shares, at $1.35.

Plumas has been somewhat quiet, with sales of 1000 shares, at $3.45@$3.50. This stock is very strong at this price, however. A sale of 100 shares of Seaton was made to-day at 70c. Cleveland shows a business of 7900 shares, at $2.75@$2.90. Trio has ranged between 62 and 67c., with sales of 11,100 shares.

In the "fancies" the dealings have been as follows: Bertha & Elith, 78,200 shares, at 37@31c.; Buckeye, 75,300, at 54@67c.; Dahlonega, 18,900, at 26@21c.; Gold Placer, 11,500, at $30@$28; Granville, 22@26c; Lacrosse, 7700, at 30@27c; Luzerne, 4300, at 28@27c. The tendency of these stocks has been to weakness, owing to the attention that is given to the speculative stocks of the Pacific coast.

The annual meeting of the Mining Exchange will take place on Monday, June 2d. The President has appointed the following committee on nominations: J. T. Soutter, Chairman; R. M. McJimsey, S. W. Lapsley, J. L. Young, H. W. Stocker, and W. W. Hanley. The members have selected the following rival committee: C. O. Morris, Chairman; R. K. Cooke, J. D. Purss, W. M. Shaw, H. L. Farris, J. H. Tucker, and F. B. Whitfield.

The Penobscot reports a product of $8000 for a 10 days' run, the ore yielding a little over $21 per ton. Only 30 stamps were running; 40 will be in operation by the end of the month. Machinery is on the way to increase the mill to 60 stamps.

The production of the Ontario from the 1st to 16th inst. was $62,481.98.

The Homestake 120-stamp mill will not be running before the 15th proximo, and probably not before July 1st.

The stock of the Caribou mine continues to sell very fairly. Mr. Brayton Ives, the President of the New York Stock Exchange, and a member of the firm promoting this enterprise, has started for Colorado to visit the mine. We are informed that Mr. Ives was identified for two years in the practical management of a mine, so that his visit will mean more than that of an ordinary banker and broker.

C. G. Rogers, Superintendent of the Green Mountain Mining Co., writing from the mines, under date of the 15th inst., says: "I have run 100 tons of ore from the lower tunnel through the mill, for which I got $1133. This is the first run made from this tunnel. I am satisfied that we will get still better ore in a very short time, but I consider this good, as it costs less than $2 per ton to work it. I have run ahead 40 feet on the ledge since I wrote you last, and find the ore improving every foot that we advance on it. The upper works are about as usual, yielding from $9 to $10 per ton. Every thing is working finely and in excellent order." Subscriptions to stock going on satisfactorily. The company has taken offices at 54 Broad street, and L. P. Bayne & Co., at same number, have been appointed general agents.

The following gentlemen left this city by special car on Wednesday to visit the Little Pittsburg group of mines at Leadville:

M. L. Potter, banker, New York.
E. H. Potter, New York.
J. L. Soutter, banker, New York.
Com. S. N. Kane, New York.
James D. Smith, banker, New York.
A. H. Smith.
A. J. Dam, Astor House.
Charles C. Dodge, New York.
Brayton Ives, President New York Stock Exchange.
Representative of *Tribune* (White).
S. B. Elkins.
Dr. R. W. Raymond, expert, New York.
J. R. Grant.
David Draper.
M. B. Crowell, New Bedford.
Representative of Boston *Advertiser*, Mr. Ross.
Charles L. Perkins, banker.
H. W. Gray, banker.
R. F. Hill, broker.
Charles H. Dow, Providence *Journal*.
J. H. Chase, President of the Providence Board of Trade.
E. S. Bowen, Gen. Supt. Erie.
D. H. Moffat, Jr., banker, Denver.
George Fryer, Leadville, Colo.
Dr. C. R. Bissell.
Charles L. Constant, School of Mines, Columbia College.
Prof. O. C. Marsh, Yale College.

The Little Pittsburg group embraces the Little Pittsburg, New Discovery, Winnemuc, and Dives mines. They have been capitalized under the laws of this State at $20,000,000, divided into 200,000 shares at the par value of $100 each and non-assessable. It is said that 50,000 shares of the stock have been subscribed for at $20 per share, conditional upon the verification of the owners' statements, and that there were offers for considerable more upon the same terms. It is the expectation of the company to pay regular dividends of 50c. per share, and extra dividends as the profits of the mines may warrant. The product of the mines has been $10,000 per day a number of consecutive days, and Mr. Moffatt promises to take out $100,000 in 24 hours should his guests desire to see that accomplished during their visit to Leadville. The Board of Directors is a very strong one, and embraces nine of New York's prominent citizens. The owners of the mines certainly show faith in the belief that the properties are worth all that they are asking for them, and should the very able experts and the sagacious business men who compose the party of investigators pronounce favorable judgment upon the mines, the stock of this company will secure a popularity unequaled by any in this country.

The Virginia, St. Clair, and Piney lead mines, located about five miles from St. Clair, on the St. Louis & San Francisco RR., in Missouri, have been incorporated as the Missouri Lead Mining and Smelting Company, Limited, with a capital of £90,000, divided into 9000 shares of the par value of £10. The stock of the company is being offered for subscription in London, where it is receiving very good indorsement. We are afraid, however, that too high a price for lead is being counted upon, and that those who may take the shares are likely to meet with disappointment. The company calculates that the cost of producing a ton of 2240 lbs. of lead, and putting it down in St. Louis will be £10, or say $48.60, per ton, and that there will be received for the same $77.76, showing a profit of $29.16 per ton. In offering a round lot there to-day, not more than $61.60 per ton could be secured, and we have before us the very large product promised by Leadville, Colo., and the Frisco District, Utah, so that the outlook is not favorable to even as high prices as rule now. We hope that the English public may not be victimized by this scheme.

We take the following from the Plumas *National* relative to the Plumas mine of California:

"Plumas National mine, on Soda Creek, is showing up well, and has every indication to prove it a permanent and valuable property. The workmen in the lower tunnel reached the ledge about a week ago, after running 840 feet, the vein matter coming in strong and showing a ledge averaging four and a half feet in width, prospecting richly in free gold, and showing a superior quality of quartz. This development has proved, beyond a doubt, that the Plumas National is a true fissure vein, and of great extent, being beautifully defined. The ore is free milling, and the sulphurets, carrying considerable gold, are readily worked by the ordinary mill process The distance from lower level to No. 1 tunnel, with the incline, is over 300 feet. A shaft was commenced in the tunnel before the ledge was reached below, and has made considerable progress, following the wall down, and showing the ore-body continuous and coming in strong and well defined, the ledge in places showing a width of five and six feet. It is the intention of the Superintendent to immediately connect the lower tunnel with this shaft, by means of a raise which will be made on the ledge. This mine has one of the longest bodies of pay ore of any mine in the county, being over 400 feet in length, and at least six years' run of ore will be shown by these developments. The mill, of thirty stamps, is one of the finest in the State, having all the modern improvements."

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

Name of Company	Closing Quotations						Opening.
	May 16.	May 17.	May 19.	May 20.	May 21.	May 22.	May 23.
Alpha	18⅝	18¾	23	21	23¾	22½	23
Alta	7¼	7⅛	8	7⅜	8¼	7⅜	8
Argenta							
Bechtel							
Belcher	5⅜	5¼	5⅞	†5⅛	5½	5½	5⅝
Belle Isle							
Benton							
Best & Bel.	14¾	17½	.0	18½	19¾	18½	19½
BlackHawk							
Bodie	13⅜	12	14¾	17¼	16½	21	
Booker							
Bullion	4⅝	5	8½	6¾	7⅜	6¾	6¾
Bulwer							
Caledonia				2⅛	*2¼	2¼	2¼
California	7	7	7	6⅞	7	7	6½
Chollar	7	6½	7¼	6½	7	6⅞	7
Confidence				12¾		14¼	
Con. Imp	1⅝		1⅝	1½	1¾	1⅝	1.55
Con. Pacific				3¼	3.40	3.75	3.90
Con. Va	7	7⅜	7⅜	7	7	6¾	6¾
Crown P'int	4¾	5	5⅜	5	5¼	5⅜	5¼
Endowm'nt							
Eureka Con	17½		18	17	17¾	17⅞	
Exchequer	5⅛	6	8½	7½	9⅛	8	8
Goodshaw							
Gould &Cur	9½	9¼	10⅛	9¾	10⅝	10	9⅞
Grand Prize	3¼	3¼	3	3	3⅛	3¼	
Hale & Nor.	13¾	13⅞	14½	14½	15⅝	14¼	15
Hamburg							
Homestake							
Hussey							
Indep'd'nce				2.60	*2.60	2.60	
Jackson							
Julia Con	3¾	3¼	4¼	4	4¼	4	4
Justice	3⅜	3½	4	3½	3¾	3¾	3¾
Kentuck				4¾	*5	5	5
Kossuth							
Leopard							
Leviathan				65c.	70c	*70.	75c.
Manhattan							
McClinton							
MeadowVal							
Mexican	36½	35¾	38	35	38	37¾	40
Mono							
Navajo							
North. Belle	6½		6¼	6¼	6¾	6½	
Ophir	43¼	41¾	44	38½	39	36½	37½
Orig. K'ys'e							
Overman	8¾	9¾	10	9¼	8¾	9½	9½
P. Sheridan							
Potosi	4	4¼	4¾	4	4⅝	4¾	4¾
Ray. & Ely		2⅞	2¾	3¼	3	3	
Richer							
Savage	11½	11⅞	12⅞	12⅝	13½	12¾	13
Scorpion						3¾	
Seg.Belcher				*26	27	*28	28
Sierra Nev.	46	46¾	52	49	51½	48¾	48½
Silver Hill				2⅝	*2¼	2⅛	2½
Silver King							
Summit							
Tioga							
Tip Top							
Union Con.	70	69	74½	70	72½	75½	80
Utah				17	18½	18½	19
Ward							
WashoeCon							
Wells Fargo							
Yel. Jacket.	16⅜	16½	18¼	17⅝	19½	18¼	18½

* Opening. † Assessed $1.

REVIEW OF THE SAN FRANCISCO MARKET.

The San Francisco list shows a marked advance on the quotations of a week ago, and while to-day's prices do not sustain the highest figures of the week, yet they evince a well-sustained market, and, taken as a whole, the list has a better look than we have noted for a long time.

Alpha shows an advance of $5 per share.

Alta has improved $1. Active operations are going forward in this mine with a view to soon begin crosscutting on the levels above the 1950 station.

Belcher is steady. The cross-cut 2360 level of this

GENERAL MINING STOCKS.

Dividend Paying Mines.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount per share of last.	DIVIDENDS. Total paid to date.	DIVIDENDS. Last Dividend.	Rate p. An	HIGHEST AND LOWEST PRICES PER SHARE IN CURRENCY AT WHICH SALES WERE MADE. May 17: H.	May 17: L.	May 19. H.	May 19. L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	May 23. H.	May 23. L.	SALES.
Alps	Nev.	800		30,000		204,000	Aug. 1878 $1 00	37,500	Apr. 1876 $0 05													
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,496,200	Feb. 1879 1 00	15,397,200	Apr. 1876 1 00													
Bobtail, G.	Col.	2,500	1,136,630	227,326	5	*		90,930	Nov. 1878 15													
Bobtail Tunnel, G.	Col.		100,000	20,000	5	52,000	July 1873 0 30	56,000	Dec. 1878 40													
Bodie, G.	Cal.		5,000,000	50,000	100	75,000	May. 1879 1 00	800,000	Jan. 1879 1 00		13½		14	13	16½	15½	19	18⅝	18¾		23	21	810
California, G. S.	Nev.	600	54,000,000	540,000	100			30,510,000	May. 1879 50		7⅞	7	7⅞	7½	7⅛	7¼	7¼	7	7¼		7¼	6¾	2,600
Calumet & Hecla, C.	Mch		2,000,000	80,000	25	1,200,000		13,850,000	Feb.. 1879 5 00		179		179				176				178	177	90
Central, C.	Mch		500,000	20,000	25	100,000	June 1862 0 65	1,340,000	Feb. 1879 4 00													
Challar, G. S.	Nev.	700	11,100,000	112,000	100	1,750,000	Sept. 1878 5 00	3,060,000	Feb. 1872 1 00													
Copper Falls, C.	Mch		1,000,000	20,000	50	535,000	May. 1876	100,000	Nov. 1871 1 00													50
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June 1873 3 00	41,040,000	May. 1879 50		7½	7¼	7⅞	7½	8	7⅞	7¼	7⅛	7¼	7⅛	7	6½	13515
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr. 1878 0 50	78,000	May. 1865 8⅓													
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*																
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,973,370	Dec.. 1878 1 00	11,588,000	Jan.. 1875 2 00		5⅛	5	5½		5¾				6	5¾	5⅞		825
Daney	Nev.	2,000		108,000		91,800	Nov. 1878 0 20	56,000	July 1863													100
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	May. 1876 1 00	3,650,000	Apr.. 1879 1 00		18½											
Eureka G. Mg., G.	Cal.	1,680	2,000,000	20,000	100			2,149,000	Apr. 1878 0 25													
Findley, G	Geo.		200,000	200,000	1			6,000	Apr . 1879		54c		54c		56c	55c	58c	57c	54c		54c		3,100
Franklin, C.	Mch		500,000	20,000	25	360,000	June 1876 5 00	585,000	Nov. 1871 1 00				7½		8		8				9		220
Gila	Ariz			100,000		70,000	Jan. 1879 0 25	50,000	Aug. 1875 0 25													
Gould &Curry, G. S.	Nev.	612	10,800,000	108,000	100	2,936,000	Mar. 1879 1 00	3,826,800	Oct. 1870 10 00												9½		100
Grand Prize	Nev.	1,500		100,000		100,000	July. 1878 1 00	400,000	Feb. 1878 1 00		3.75						3						220
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	3,082,000	Mar. 1879 1 00	1,598,000	Apr. 1871 5 00						15								10
Homestake, G.	Dak		10,000,000	100,000	100			150,000	May. 1879 20		35	34¾	34⅞				35	34½	34¾		34⅞		615
Hukill, G. S.	Col.	3,288	1,000,000	100,000	10	*			Dec. 1878 0 10		2.50		2.55	2.50	2.50				2.60	2.55	2.70		1,100
Independence	Nev.	1,500		100,000		75,000	Feb.. 1878 15	150,000	Nov. 1878 25		2.75				2.50				2.55		2.70	2.60	910
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug. 1878 1 00	1,252,000	Mar. 1870 5 00													
K. K. Cons.	Nev.		500,000	50,000		300,000	Jan.. 1879 1 00	50,000	Sept. 1873 0 25													
Leadville	Col.		2,000,000			*		40,000	May. 1879 10		3.80	3.65	3.70	3.60	3.70	3.60	3.75	3.55	3.75	3.45	3.65	3.35	18590
Leeds	Uth	3,000		60,000				78,000	Oct.. 1878 0 15						80c								100
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	225,000	Mar. 1879 50	162,500	Dec. 1876 0 50													
Manhattan	Nev.			50,000		50,000	Oct.. 1878 1 00	400,000	Feb. 1877 1 00													
Merrimac, S.	Mas.	1,500	500,000	100,000	5	*	June	120,000	Mar.													
Minesota, C.	Mch.		1,000,000	20,000	50	436,000	1869 1 00	1,820,000	Mar. 1876 0 50													
Modoc	Cal.		4,000	100,000		450,000	Feb.. 1879 0 50	50,000	Dec. 1876 0 50													
Moose	Col.	39,000	2,000,000	200,000	10	*		550,000	Mar. 1878 0 25		3.05	2.90	3.20	3	3.15	3	3.10	3.05	3		3.05	2.90	9,050
National, C.	Mch.		500,000	20,000	25	195,000	Oct.. 1875 1 00	360,000	Oct. 1873 1 00													
N. Y. & Colorado, G.	Col.		1,000,000	50,000	20	*		20,000	Mar. 1877 0 20								1.35						100
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100			1,425,000	Feb. 1878 1 00													
Ontario	Uth.	3,000	10,000,000	100,000	100			2,100,000	Apr. 1879 50										39				20
Ophir, G. S.	Nev.	675	10,080,000	100,800	100	3,436,800	Nov. 1878 1 00	1,394,400	Mar. 1864 4 00													
Osceola, C.	Mch.		1,000,000	40,000	25	880,000	Mar 1876 2 00		Nov. 1878 1 00													
Pewabic, C.	Mch.		500,000	20,000	25	185,000	June 1868 3 00	480,000	July 1873 1 00								25c						42
Potosi, G. S.	Nev	700	11,000,000	112,000	100			§														
Phœnix, C.	Mch.		1,000,000	20,000	50	817,500	Sept. 1870 3 00	10,000	Dec. 1876 1 00													
Plumas	Cal.		1,000,000	100,000	10			138,000	May. 1879 8				3 50	3.45	3.45				3.50	3 45	3.50		1,000
Quincy, C.	Mch.		200,000	20,000	10			2,230,000	Feb. 1878 5 00		14½	14¼	14½	14¼							13¾		280
Raymond & Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	80,000	Apr.. 1879 1 00	3,075,000	Sept. 1873 3 00													
Ridge, C.	Mch.		500,000	20,000	25	200,000		90,000	Feb. 1875 1 00		1⅛		1⅛		2		2¼				2¼		1,670
Rye Patch	Nev.	1,600		30,000		157,500	Dec.. 1878 1 00	105,000	Dec. 1877 0 25													
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10			250,000														
Savage, G. S.	Nev.	800	11,200,000	112,000	100	4,196,500	Feb. 1879 1 00	4,460,000	June 1869 3 00													
Seaton, G. S.	Col.	1,700	500,000	50,000	10	*			May 1877 0 10													
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	2,550,000	Apr.. 1879 2 00	102,000	Jan. 1871 1 00												70c		100
Silver Islet	Mch																					
Silver King	Ariz	1,500	10,000,000	100,000	100			450,000	Nov. 1878 0 50		49	47	50	48	49		48	45½			44	43	1,285
Standard	Cal.		10,000,000	100,000	100	50,000	July 1878 1 00	1,000,000	Apr. 1879 0 50		29½		59¾	29	29⅝		33	29⅛	29¾		32	29⅝	3,600
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100	4,038,000	Apr.. 1879 1 00	2,184,000	Aug. 1871 2 50						22	20	20½	20	22		20⅝	19½	565
McClinton	Cal..	1,000		60,000		45,000	Dec.. 1878 0 25															

Non-Dividend Mines.

Allouez, C.	Mch.		1,000,000	20,000	50	940,000	May 1876 5 00																	
Alpha, G. S.	Nev.	306	3,000,000	30,000	100	240,000	Mar. 1878 1 00																	
Alta	Nev.	600		108,000		1,101,000	Feb. 1879 1 00																	
Am. Flag, G.	Col.	5,300	600,000	60,000	10	*																		
Andes	Nev.	2,000		100,000		355,000	Oct. 1878 0 25																	
Baltimore Cons.	Nev.	1,050		84,000		1,015,000	Apr. 1878 0 50																	
Benton	Nev.	600		108,000		91,800	Dec. 1878 0 50																	
Bechtel	Cal.			60,000		96,000	Apr.. 1879 0 25																	
Bertha & Edith, G.	Vir.	645 acs.	500,000	500,000	10	*											1⅛							100
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	639,390	Apr.. 1879 1 00				37c	34c	37c	34c	35c	31c	36c	30c	33c	30c	33c	31c	78,200
Boyle	Nev.	600		108,000		16,210	Aug. 1878 0 15																	
Buckeye	Col.		2,000,000	400,000	5	*					63c	54c	59c	57c	67c	58c	67c	63c	65c	62c	63c	61c	75,300
Bullion, G. S.	Nev.	943½	10,000,000	100,000	100	3,002,000	Dec. 1878 1 00																	
Bulwer											14		13		13⅜	13¼	13⅜				12¾		160
Cal. B. H.											4¼		4⅜		4.75	4.50	4.75	4½			4½		370
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,640,000	Apr. 1879 0 50																	
Cashier	Col.		500,000	250,000	2	*																		
Challenge	Nev.	90		50,000		10,000	Nov. 1878 0 20																	
Cleveland, G	Col.	3,715	250,000	25,000	10	*					2.80	2.75	2.85	2.75	2.85		2.85	2.80	2.90	2.80	2.90	2.85	7,900
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	100	875,000	Feb.. 1879 0 20				1.70	1.55	1.60	1.50	1.80	1.70	1.75	1.65	2	1.85	1.85	1.70	15,710
Con. N. Slope & E. T.C.	Col.	15,000	500,000	10,000	50	*																		
Con. Pacific	Cal.	1,490		60,000											3.50	3.40	3.55	3.50	3.70	3.60	4.10	4	500
Dahlonega	Ga.		250,000	250,000	1	*					26c	25c	24c	21c	24c	22c	25c	23c	24c	23c	24c		18,900
Dana, C.	Mch.		500,000	20,000	25	68,000	Jan.. 1863 0 50																	
Dawson, S.	Ont.		1,200,000	60,000	20		1878																	
Day	Nev.	1,500		100,000		70,000	Feb.. 1879 0 15																	
Dayton	Nev.	1,600		100,000		750,000	Apr. 1878 0 25																	
De Frees	Ariz	1,500		100,000		115,000	Oct.. 1878 15																	
Duncan, S.	Ont.		1,200,000	60,000	20	75,000	July 1876 41¾																	
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	480,000	Feb.. 1879 1 00						4⅛		4¼								150
Gold Placer, G.	Col.		5,000,000	200,000	25																			
Granville, G.	N. C.	357 acs.	1,000,000	100,000	10	*					26c		30c	28c	29c	28c	29c	28c	28c		28c		11,500
Humboldt, C.	Mch.		500,000	20,000	25	100,000	Sept 1878 0 15								24c	22c	25c	24c	26c	25c	26c	24c	13,100
Hussey	Nev.	4,500		100,000		110,000	Jan.. 1879 0 15																	
International, S.	Ont.		1,200,000	60,000	20																			
Julia, G. S.	Nev.	3,000	11,000,000	110,000	100	872,500	Jan. 1879 1 25								65c								300
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	2,703,500	Jan.. 1879 1 00														4½		150
King's Mountain, G.	N. C.		1,200,000	120,000	10	*																		
Kossuth	Nev.	2,700		108,000		421,200	Aug. 1877 0 15																	
Lacrosse	Col.	3,900	1,000,000	100,000	10	*					30c	28c					30c		27c				7,700
Leviathan	Nev.	2,900		100,000		265,000	Mar. 1879 25								66c						75c	65c	1,100
Luzerne	Col.	4,200	5,000,000	500,000	10	*									27c	25c	28c	27c	28c	27c	28c	27c	4,300
Madison, C.	Mch.		500,000	20,000	25	123,000	Sept 1876 0 10																
Mariposa preferred.	Cal.	44,387	5,000,000	50,000	100	1,425,000	June 1877 1 00																
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June 1878 1 00						7	6¾	7						6½		700
McCracken	Ariz	4,500		100,000		100,000	Oct . 1878 0 50																
Martin White	Nev.			100,000		650,000	Dec. 1878 1 50																
Mesnard, C.	Mch.		500,000	20,000	25	160,000	Apr. 1876 0 50																
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	217,400	May. 1878 0 50				36												
Minnietta Belle	Cal.	1,500		100,000		75,000	Apr. 1878 0 50																5
Mt. Bross Tunnel	Col.	8,000	2,000,000	200,000	10	*	1878																
Navajo	Nev.	1,500		100,000		145,000	Feb.. 1879 0 20																
New York	Nev.	1,000		100,000		80,000	Feb.. 1879 0 40																
Occidental	Nev.	1,706		40,000		72,500	Feb. 1877 0 25																
Orig. Keystone	Nev.	1,500	1,000,000	100,000	10	100,000	Apr. 1879 0 50																
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,404,280	Jan.. 1879 3 00																
Petherick, C.	Mch.		500,000	20,000	100	165,533	Mar. 1876 0 50																
Pleasant View, G.	Col.	1,200	200,000	20,000	10	*																	
Quicksilver preferred.	Cal.	8,500	4,291,300	42,913	100	*					43	42	44¼	44	42½	40½	42						1,800
" common	Cal.	acres.	5,708,700	57,087	100	*					14½	14			15	14¾	15½						702
Rockland, C.	Mch		500,000	20,000	25	495,000	Jan.. 1874 1 00																
Seg. Belcher, G. S.	Nev.	160	640,000	6,400	100	244,800	Apr. 1878 5 00																
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	100	1,494,000	Apr. 1879 0 50				2¼												50
Silver Prize	Nev.	1,500		100,000		65,000	Feb 1879 0 25																
Star, C.	Mch.		500,000	20,000	25	265,000	Mar 1876 0 50																
Superior, C	Mch.		500,000	20,000	25	340,000	Mar 1878 0 25																
Sutro Tunnel	Nev.		20,000,000	2,000,000	10			0 50			4¾	4⅝	4¾	4⅝	4¾	4½	4⅝		4¾	4½	4⅝	4⅝	12,755
Tiptop	Ariz			100,000		120,000	July 1878								80c		75c						600
Tioga	Cal.	1,500		100,000		80,000	Apr. 1879 0 20																
Trio	Col.	1,250	150,000	150,000	1								94c	92c	94c	83c	96c	83c	87c	85c	96c	94c	11,100
Trojan	Nev.	1,500		100,000		265,000	Apr. 1879 0 25								12c		12c	11c			12c		700
Tuscarora	Nev.			100,000		25,000	Mar. 1879 0 05																
Union Cons. G. S.	Nev.		10,000,000	100,000	100	46,000	Apr.. 1879 1 50																
Utah	Nev.	1,000		20,000		830,000	Apr. 1879 2 50																
Ward	Nev	1,200		110,000		99,000	Jan.. 1879 0 30																
Wells Fargo	Nev.	1,500		108,000		243,000	Apr.. 1879 0 50																

Total Assessment levied to date..... ... $65,873,613

G. Gold. S. Silver. L. Lead. C. Copper. * Non-Assessable.
Total Dividends paid to date..... ... $154,817,330

Total Shares sold during the week..... 329,114

mine has penetrated quartz a distance of 30 feet, which assays on an average $7. The flow of water is slackening.

We have no quotation of Belle Isle. The stock has been fairly active in San Francisco at 30@40c. In the 70-foot drift of this mine they have an 18-inch vein of good ore, and a 20-inch vein of ore and porphyry mixed in the 250 drift. The ledge in the No. 1 upraise, 150 level, shows well.

Argenta has been very active in San Francisco, at $1.10@$1.25 per share. The stopes throughout this mine are looking well, and yielding plenty of ore to keep the mill running. Assays average $80 per ton.

Bullion shows an advance of $2 per share. Operations are progressing satisfactorily in this mine.

Work is being pushed on all points of the Black Hawk mine. No particular change. The winze of the 220-foot level north is now down over 40 feet, in excellent ore. Recent sales in this stock have been made in San Francisco, at $1.25@$1.90 per share.

Bulwer has recently sold in San Francisco at $10.25 @$12. Drifting on the south wall on 400-ft. level is in 53 feet; the ledge is broken, but less so than heretofore. From drifts above, ore is being obtained to supply the Bodie mill ; main drift south, 400 level, on the Ralston, now near 500 in length, all the way in ore, is still being extended. It is understood, on what is stated good authority, that this company will soon declare a dividend aggregating $30,000, equal to 30 cents per share. Arrangements will soon be made to place the stock of this company on the New York Exchange.

A rich strike is reported in the Consolidated Pacific mine. The strike was made in the bottom of the winze on ledge No. 2 at a depth of 160 feet from the surface. The ledge is reported 20 inches in width, quite rich, free gold being displayed in a number of places, fissures being perfectly defined. The ore is decomposed, easily extracted. Stock sells at $3.90 per share, which is quite advanced on recent prices.

The old bonanzas are slightly lower, but have been comparatively steady during the business of the week. The joint west drift, 850 level, of the California mine is averaging 4½ feet per day, in a formation changing from porphyry to vein material. The repairs to the machinery, etc., of the C. & C. shaft materially interfered with the output of these mines ; but work is now going on smoothly.

Chollar shows some improvement. Nothing of special interest from the mine.

Consolidated Imperial is better. Operations have been resumed in this mine, and every thing is in good shape for future efficient action.

Crown Point is lower. This company is drifting north, 2500 level, cross-cutting joint with Belcher on the same level and 127 feet further north, and sinking the winze from the 2500 level. The drift north is being run outside the ledge. The cross-cuts are in about 95 feet each, and in porphyry carrying streaks of quartz and looking well. The winze lacks 60 feet of being down to the 2700 level.

The stock of the Eureka Consolidated Mining Company is well maintained at the recent advance. We note no particular change from the weekly letter of operations in the mine. The recent coal contracts of this company have been awarded at 26@26½c. per bushel.

Exchequer has doubled in price, opening to-day at $8 per share, against $4 a week ago. The face in the north drift, 2400 level, of this mine is in a fine formation of porphyry, carrying streaks of quartz.

Fourth of July, a Eureka mine, is selling in San Francisco in limited amounts at from 35c to 40c per share. The vein of ore found in the bottom of this mine on the north end of the cave, 50 feet from the lower tunnel level, has materially improved both in size and quality. This company has at the Richmond furnace about 30 tons of first-class ore.

Gould & Curry has advanced $1 per share. The drain tunnel in this mine is connected with the shaft, and the Osbiston shaft is temporarily shut down.

Grand Prize is steady. The flow of water in the shaft is quite strong. The company is not extending either foot-wall drift on the 500-foot level, and will not until the depth for the 600-foot level is reached, fearing more water. Making rapid progress running the east 400-foot level drift ; extended it for the week ending 17th inst. seventy feet, and have fourteen inches of good milling ore in the face. Two or three more days will carry it to the Argenta line. At the line will run joint cross-cut through the ledge formation.

Hale & Norcross has improved $2 per share. The new lightning drift, 1620 level, to connect with the Julia branch of the Sutro Tunnel, is averaging 12 feet per day and is now in over 100 feet. The water is still raising slowly in this mine.

Independence closed yesterday at a slight decline. The north drift on the 300-foot level of this mine is in 61 feet ; the south drift 117 feet. The stopes are yielding the usual amount of ore. Mill and all machinery running well.

Julia is a little better. Operations were recently checked in this mine owing to the bursting of a water-cylinder in the pump.

Justice is steady. The new workings in the Waller Defeat ground are yielding their usual amount of ore, and the prospecting there is opening up new formations of better promise than much of the ground from which ore has been extracted and milled. The drift 1300 level of this mine is opening up in very favorable formation.

Kentuck is well maintained at a slight advance.

Leopard, a Nevada mine, situated in the Cornicopia District, has been very actively dealt in on the San Francisco market, at $1.15@$1.40 per share. A recent letter from this mine says :

"Since last report we have cut the ore in No. 3 cross-cut. It shows a well-defined ledge of fine ore. This last opening shows that we have ore for a distance of seventy feet, as it still shows on the north and south of the cross-cuts. We are sure it continues both ways. Will start opening up the ore by connecting the cross-cuts by drifting out the ore. The ore vein is richer and larger as we go south. Will open it up as fast as possible, so as to take out ore. The 800-foot level will soon be out of the hard formation, when we will be able to make better headway, and must soon get to the ore body, as it is only sixty feet south of the shaft on the 700 level."

Manhattan shows very limited dealings in San Francisco, and no improvement on the prices recently attained. It is reported that the ore-houses of this company are overflowing, and the capacity of the mill is taxed to its utmost to reduce ore as fast as supplied from the mine. New ore-bodies have lately been developed and the working force largely increased. This company is now reducing about 140 tons of ore per week, which mills about $200 per ton. The management of this mine, in view of the above facts, is incomprehensible.

Martin White has declared a dividend of 30c. per share. We have no quotations of this stock. Recent sales have been made in San Francisco at $6.75@$7 per share.

Mexican has advanced $6 per share, while Ophir is down $2. Water is materially troubling the Mexican mine, interfering with operations on both the 1600 and 2000 levels. Ophir continues its regular production, and work is reported as favorably progressing in all parts of the mine.

Navajo is very sparingly dealt in on the San Francisco market, at 10 to 20c. per share. It is stated that the ore-vein in the 250-level stopes of this mine continues regular and is narrow, but the ore good. In the 150-level stopes they have a 14-inch vein of good milling ore.

Northern Belle is lower. This company continues its regular output.

North Bulwer has been active in San Francisco at 30 to 60c., late sales being made at higher figures. Deposits of silver sulphurets have been found in the 350-foot level of this mine. Ore not of very high grade. Active operations are going forward in all parts of the mine.

Overman shows an improvement in sympathy with the market. An increased flow of water is encountered in this mine. The Foreman shaft is down about 650 feet.

Potosi shows quite an advance.

Raymond & Ely has been quite steady during the week at the recent low prices. A new pump for this mine has arrived, and active work has begun in different parts of the mine, which is progressing quite favorably.

Savage has advanced $2, but the water still prevents the proper working of the mine.

Segregated Belcher has gone up to $28 per share, an advance of $5 for the week.

Silver Hill shows a slight advance. This company has levied an assessment of $1 per share. The incline has reached the 1300 level. Low-grade ore is being taken from the south drift, 1100 feet from a six-foot vein, which will pay to mill.

The new bonanzas, Sierra Nevada and Union Consolidated, have both improved, the former advancing to $48½, and the latter to $80. The incline in the Sierra Nevada continues to make the usual progress down, and is without material change of formation as a whole. Some of the streaks of ore encountered are very rich. It has still 30 feet to go to reach the 2400 level, and will then be continued for a sump. The water continues strong, but is well handled by the pumps. The work of extracting ore on the 2200 level has been commenced, and soon the average amount taken out will be 70 tons per day. What ore is taken out is being stored at the Mariposa mill, which will be set to crushing it as soon as a sufficient amount has accumulated to insure its steady work. Of the Union Consolidated the San Francisco *Evening Post* says :

"It is well known that the bonanza people base their expectations on the prospects of the Union Consolidated, near the northern boundary of which mine the new ore-body was discovered. Something beyond a mere gambling propensity must have prompted Flood & Co. to withdraw money from United States bonds and invest it in the north-end stocks. Nearly every thing goes to prove the existence of a large ore-channel on the north end."

Very active work is going forward in the Tioga, a Bodie mine with promising indications. A body of ore has been disclosed on the 320 level of this mine, 3½ to 4 feet in width, with every prospect of permanency. This stock has been fairly active in San Francisco at $2.10@$2.35 per share.

We note a sharp advance in the stock of the Utah Mining Company. Active work is going on in this mine.

Yellow Jacket opened at an advance of $2½ per share for the week. The new shaft is averaging 4½ feet per day in increased depth, and is now down 2540 feet. A drift has been started from the 2500 station to meet that running toward the shaft on the 2400 level of the old works, and has been advanced forty feet.

The San Francisco *Commercial Herald* of the 15th inst. says of the market :

"We now experience a very variable mining share market, early in the week a sharp recession being the order, and at the close a considerable recovery manifested itself. This spasmodic advance and decline exhibits a very timid market, though the concentration of stocks is reported to be better and stronger than for a long time past, still the opportunity of gain upon the slightest change is taken advantage of by those in the business in order to meet expenses. It seems as if nothing short of a development on the Comstock would bring about a revival, notwithstanding the supposed careful and more extensive than usual concentration ; however, the ways of the stock market 'are peculiar,' and don't you forget it. True, we have great faith in a 'movement' in what are now called the 'water stocks' of the Comstock, just so soon as the Sutro Tunnel drain will make an impression by the relief it is expected to afford to the workings at great depth. This we are promised in the early part of the coming month. We hope it may do even more than is generally expected, and in a most substantially remunerative way to all interested. We have been furnished the following facts : The progress on the sub-drain for the first week's full work was nearly 3000 feet, and the total completed to May 8th is 6445 feet. At this rate, the drain would be completed in about five weeks, or by the middle of June. It is probable, however, that better progress will be made as the work is more thoroughly systematized, and the men become more accustomed to the work."

Mining Assessments Delinquent in May.—The *Stock Report* of the 14th inst. reports the following list of mining assessments delinquent at the respective offices during the month of May, so far as made public :

Name.	Per share.	Amount.	Del. May.
Almaden Quicksilver	$0.25	$2,500	17
Bechtel Consolidated	25	25,000	26
Belmont	30	4,500	10
Best & Belcher	$1.00	100,800	21
Black Jack	25	2,500	26
Bodie	1.00	50,000	30
Bodie Tunnel	05	5,000	7
Brilliant	25	25,000	30
Butte Creek	25	2,500	17
Caledonia	50	50,000	16
Champion	15	15,000	21
Cherokee Flat Blue Gravel	05	1,560	12
Comanche Mill	1.00	50,000	15
Crown Point Ravine	15	4,500	20
Dudley	25	16,000	10
Eagle	20	12,000	20
Excelsior Deep Gravel	25	12,500	28
Florence Blue Gravel	05	3,000	22
Goodshaw	10	10,000	30
Heart Basin Gravel	30	15,000	22
Hidalgo Smelting	01	1,000	8
Jupiter	20	12,800	26
Lewis Consolidated	02	1,200	3
Mono	50	25,000	1
Mount Jefferson	05	5,000	2
Mount Rose	05	5,000	7
Noonday	20	12,000	1
North Noonday	20	12,000	2
Northern Light	10	6,000	14
North Sierra Nevada	05	5,000	7
Old Channel	02	2,000	17
Oro	05	5,000	8
Original Keystone	50	50,000	27

Panther	10	5,000	7
Phenix	25	12,500	20
Queen Bee	10	6,000	26
Real del Monte	50	25,000	1
Red Cloud	30	15,000	13
Rocky Point	10	5,000	29
Segregated Europa	25	25,000	8
Sierra Nevada	2 00	200,000	20
Silver Hill	50	54,000	13
Sophia Gravel	02½	2,500	26
South Belvidere	10	6,000	10
South Utah	10	10,000	10
Succor Mill	50	34,200	28
Tioga Consolidated	20	10,000	8
Twin Peaks	15	15,000	16
Trojan	25	25,000	15
Tuscarora Mill	05	5,000	5
Union Consolidated	1.50	150,000	5
Utah	2.00	40,000	21
Wells Fargo	25	27,000	24
Yellow Jacket	1.00	120,000	19

This list covers 54 claims, and the aggregate is $1,351,560.

Assessments with dates when delinquent: Emigrant, 50c.; North Bonanza, 50c.; American, 25c., June 11th.

The Bechtel Consolidated delinquent assessment sale has been deferred until June 16th.

The Selby Hill assessment of 50c. per share, levied April 18th, has been rescinded, and one of 15c. per share was levied, to become delinquent June 9th.

The United Nickel Co. will hold its annual meeting June 3d.

Union Mining Co. of Ind.—The annual meeting of this company is called for June 2d.

Copper and Silver Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Thursday Evening, May 22, 1879.

The activity in the market still continues, and prices have been well sustained throughout the week, though a trifle unsteady at the close, in consequence of an uneasy feeling prevailing in the general market which has been created by a bad break this afternoon in some of the most active railroad stocks and bonds. It is confidently expected, however, that the market will soon recover, and it is predicted on the street that ingot copper is again going to see some high prices, and that these stocks are going to be the most active and interesting on the list, and some of the stocks are already beginning to feel the effects of the returning confidence in them and have advanced in prices.

Calumet & Hecla has fallen off toward the latter part of the week, and sold at 177, but closed a little firmer at 177½@178.

Central is quiet, being offered at 26, and no bid.

Copper Falls is also quiet, there being a quotation at 1½, assessment paid, and closes at 20@30c., assessment unpaid.

Franklin is quite strong, having sold up to 8½, and closes at 8@8⅛.

Minnesota is steady at ⅞@$1.

Osceola is steady at 15¼@16, and no sales.

Pewabic has already felt the influence of the heavy assessment, and sold at 25c. per share, and closes at about that figure.

Quincy is quite strong, having advanced to 141½, and declined again to 133¾, closing strong at 133¾@14, and appears as though insiders were buying.

Ridge is also strong, having advanced to 2¼, and closes steady at 2⅛@2¼, and is talked of as going higher.

Duncan is rather quiet, having sold down to 4¼, and closes steady at 4⅛@4¼.

International is quiet and weak at 60@65c.

Silver Islet has declined rapidly to 43, and rallied to 44, and looks as though it had reached bottom and would do to buy at present figures. It closes steady at 43¾@44½.

Commonwealth is quiet at 45@50c.

Sullivan is offered at 9⅛, and sold at 9, though the reports from the mine still continue very good, and the stock closes 8 bid, and sells slowly.

Malachite has sold down to 17, and closes weak at 15@25c.

Altar is also weak, at 1¼@1⅛.

Coal Stocks.

NEW YORK, Friday Evening, May 23, 1879.

The market, which opened irregular, has remained so all the week, though nothing has occurred to unsettle it other than a purely speculative movement. The transactions have been large. Delaware, Lackawanna & Western sold to the amount of 143,615 shares at 55⅛@58⅛, closing to-night at 56¾, the lowest of the day. Delaware & Hudson Canal stock changed hands to the extent of 12,355 shares at from 47⅛ to 50, closing at 47¾, weak. New Jersey Central has done the largest business since its re-organization, 132,242 shares, between 47⅛ and 51¾, closing to-night at 48⅝, rather weak.

The Philadelphia stock market has also been irregular, but to an extent more marked. The whole list, led by the fancies, kept steadily advancing until Wednesday, when a sudden turn took place, causing a general decline of from 1 to 3 per cent and over.

There is a rumor set afloat that it is President Gowen's intention to lease the Lehigh Navigation Co.'s RR. and the entire New Jersey Central lines, but it has had no effect on the market. Lehigh Navigation has been strong up to to-night, closing at 21. Pennsylvania, which felt the break least, closes at 36⅜, one point above yesterday. Reading closes weak, and Lehigh Valley firm.

The Chesapeake & Ohio Railroad.—This company's purchase money funding bonds, 6 per cent mortgage gold bonds, and 6 per cent mortgage currency bonds, and first and second preferred stock, have been placed on the Stock Exchange list. The sales in all of these securities during the week have been very large, and at well-maintained rates. Messrs. Fisk & Hatch, who represent this road, in a recently-issued pamphlet say:

"The company was organized July 1st, 1878, as the purchaser of the property and franchises of the late Chesapeake & Ohio Railroad Company, at foreclosure sale, in pursuance of a plan of reorganization entered into by the latter company's bondholders and creditors. The road is in operation a distance of 424 miles, traversing from east to west the States of Virginia and West Virginia, and possesses a one-mile water-front, about two miles below the city of Richmond, on the James River. The company also holds a franchise for bridging the Ohio River at Huntingdon. The pamphlet states that plans are now under consideration for the completion of the Lexington & Big Sandy Railroad, from Mount Sterling eastward to the Big Sandy River, a distance of about 88 miles, where it would join the Chesapeake & Ohio, giving the latter road important Western connections. The capital stock of the company consists of $4,697,803 first preferred stock; $6,431,615 second preferred stock, and $15,906,138 common stock; making a total of $27,035,556. The bonded debt amounts to $27,196,925."

A Cincinnati dispatch says: "J. D. Watson, a representative of a company of Boston capitalists, is completing arrangements for building a railroad to connect this city with the Chesapeake & Ohio Railroad, at Huntington, W. Va., and thus give us an all-rail route to Richmond, Va. The new company was fully organized under the name of the Chesapeake, Ohio & Cincinnati Railroad, and owns one million acres of fine mineral land in West Virginia. It has negotiated $2,000,000 of bonds in New York, and purposes to build the road without asking any thing of other parties. The scheme has just come to light, and business circles are delighted. Watson says he has been a year and a half working up the matter, and that work will be commenced soon."

COAL STOCKS.

Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share.

NAME OF COMPANY.	Capital Stock.	Shares. No.	Shares. Par Val.	Last Dividend. Mo.	Y.	A't.	Rate per Ann.	May 17. H.	May 17. L.	May 19. H.	May 19. L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	May 23. H.	May 23. L.	Sales.
	$		$				Per c'nt													
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½	.....	.....	.....	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	500
Del. & H. C.	20,000,000	200,000	100	Aug	76	4	9	48	47⅛	50	48⅛	49⅜	48⅛	50	48⅝	49¼	48⅜	48¾	47⅝	12,355
D., L. & W. RR.	26,780,000	524,000	50	July	76	2½	5	57	55⅛	58	56⅞	58¼	57	58⅛	57¼	58⅛	56¾	58¾	57⅛	143,615
Lehigh C. & N	10,148,850	208,971	50	Nov	76	1½	5½	23⅜	21⅜	24⅛	23⅜	24	23⅜	23⅝	22	23⅜	22	21½	21	21,840
Leh. V'y R. R	27,228,855	540,858	50	Mch	79	1	4	37	37	38	36⅝	39¾	38	39	38½	38	38	38¼	38	6,984
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
N. J. C. R. R.	20,600,000	206,000	100	Apr	76	2½	2½	49½	47⅛	51¾	49⅝	51¾	50⅜	50¾	48½	49¾	48⅝	49⅝	48⅝	132,242
Penn. Coal	5,000,000	100,000	50	May	78	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R.	68,870,200	1,337,404	50	May	79	2	8	37¼	36¾	36¾	36½	36¾	36½	36¾	36½	36⅝	36½	36½	36⅜	27,440
Ph. & R. R. R	34,278,175	685,563	50	Jan	76	+2¼	10	21½	21¼	21⅜	21⅛	21¾	21	21⅛	19¾	20½	19⅜	19¼	19⅛	97,132

The Delaware and Hudson Canal Co. has paid in dividends to date $38,821,104, and the Philadelphia and Reading $43,012

Total Sales.. .... 442,308.

Gas Stocks.

NEW YORK, Friday Evening, May 23, 1879.

New York stocks are steady, with a fair demand. Brooklyn stocks are lower, and very little demand for them. With about five exceptions, the whole list has undergone a change.

The St. Louis Gas-Light Co.—The receiver of this company has been ordered to accept the proposal of the administrators of W. H. Brown, and abrogate the present contract for coal for the works, and enter into a new contract for a million bushels at 17 cents per bushel. The reasons given by the judge are that the parties to the suit have assented to the proposal; that the contract is reasonable and advantageous to the interests of the trust, and because the contractors have heretofore given satisfaction. The proposition to test the Illinois coal is rejected, because that quality of coal can not be used at the works without an outlay of $25,000 to $30,000, as stated by the superintendent.

The Fulton Municipal Gas Co., of Brooklyn.—The Brooklyn *Times* says: "The Mutual Gas-Light Company, which made a great noise on local affairs a couple of years ago, and won the premature confidence of the public by assuming the *rôle* of 'our mutual friend' with the consumer, is extinguished at last. Having failed to secure a revival of its charter from the Legislature, its principal promoters have contrived to transfer the thirty to forty lots at Degraw and Nevins streets, with the gasometer and buildings thereon, and all the other property of the Mutual Gas-Light Company, to the Fulton Municipal Gas Company, and the deeds of transfer were filed in the Register's office yesterday. The purchase price is said to have been $72,000, and the incorporators of the new company, which was organized last March, are James N. Smith, Wm. Schwarzwalder, F. F. Jones, Wm. Foster, Jr., H. S. Bennett, G. H. Roberts, and P. P. Dickenson. The capital stock is reported as $1,500,000, and all subscribed, and the company promises to supply all demands for gas by December next at a reduction in the price at present charged by other companies."

Gas Engineers' Association.—It has been discovered to-day that a private convention of the gas companies of Central, Southern, Northern, and Western New York, was held in Syracuse last Tuesday, to take into consideration generally how to conserve the best interests of those corporations; particularly to elicit information of the effect on gas stocks of the Edison invention, compare notes as to the best methods of gas manufacture, and form a combination of all the interests in the different cities for better protection against any competition that might arise. Considerable discussion followed on the electric light and the methods of improving the quality of gas and lessening the cost of the same. No definite provisions were adopted or exact conclusions reached. The Convention adjourned after selecting Rochester and August 21st as the place and time of holding the next meeting.

Gas in Paris.—Visitors to the last Paris Exhibition will recall the display made in a separate pavilion by the Parisian Company for Lighting and Heating by Gas, showing its improved gas-furnaces, the process of manufacture, the treatment of various sub-products, and the distillation of coal, coke, gas-tar, and ammoniacal liquor. Statistics published exhibit the progressive increase of this company's gas from 1850 to the close of 1878, with the exception in the progression of 1870, the year of the Franco-German war, and of 1871, the year of the Communist revolt. In 1855, the consumption of its gas reached to 40,744,400 cubic meters; in 1865, to 116,171,727 cubic meters; in 1875, to 175,938,244 cubic meters; and in 1878, to 211,919,517 cubic meters. The productive power of the company's works is 236,500,000 cubic meters per annum. Its system of pipes has a length of 7967⅞ miles; the public lamps served by it number 45,004. Its receipts for the use of gas amounted in 1878 to $10,805,195, as against $9,641,160 in 1877. The dividend on its capital, consisting of $50 shares, was $13 per share last year, an amount closely approached in several of the preceding years. These shares now stand at a premium of 100 per cent.

The Citizens' Gas Company's Works, at Chattanooga, Tenn., are to be put in first-class order by November 1st, 1879. Gas will be furnished to consumers at $2 per 1000 feet, a material reduction from the present rates.

The Brooklyn gas appropriation for the ensuing fiscal year has been fixed at $761,164.

South Boston Gas-Light Co.—20 shares, at 100 per share.

AUCTION SALES:

Jersey City Gas-Light Co.—322 shares, at 146@145½.
Manhattan Gas-Light Co.—36 shares, at 181½.
Williamsburg Gas-Light Co.—200 shares, at 75.
Boston Gas-Light Co.—6 shares, at $735@$740 per share.
Lynn (Mass.) Gas-Light Co.—5 shares, at $75 per share.
Roxbury (Mass.) Gas-Light Co.—10 shares, at $147 per share.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	Dividends. Rate per ann.	Dividends. Am. of last.	Dividends. Date of last.	Quotations. Bid.	Quotations. As'd.
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	6	1½	Apr., '79	72½	76
" Bonds	90,000	1,000	6	3½	Feb., '79	99	102
N. York "	4,000,000	.....	8	4	May, '79	99	101
Metrop. "	2,500,000	100	10	5	Feb., '79	122	127
" Certfs.	1,000,000	.....	7	3½	Feb., '79	100	102
Harlem "	1,850,000	50	6	3	Feb., '78	40	50
Manhat. "	4,000,000	50	.....‡	5	Feb., '79	180	185
Brooklyn, Bkln.	2,000,000	50	15	5	May, '79	120	130
Nassau	1,000,000	25	.....‡	3	Jan., '79	60	68
" Certfs.	700,000	1,000	7	3½	May, '79	80	87
People's	1,000,000	10	...‡	3½	Jan., '79	18	22
" Certfs.	300,000	1,000	7	3½	Jan., '79	70	75
" Bonds	325,000	.....	7	3½	May, '79	90	96¾
Metrop. "	1,000,000	100	5	2½	May, '79	50	58
W'msb'g "	1,000,000	50	8	1½	Apr., '79	70	80
" Certfs.	1,000,000	.....	7	3½	Jan., '79	85	92
Citizens'	1,200,000	20	....‡	3	Jan., '79	60	67
" Bonds	315,000	1,000	.....	3½	Apr., '79	95	100
J. C., N. J	750,000	20	10	7½	Jan., '79	135	145
Municipal, N. Y.	2,000,000	100	12	3	Feb., '79	115	120
" Bonds	750,000	100	7	3	Feb., '7	100	106

DIVIDENDS.

DIVIDEND NOTICE.—LITTLE PITTSBURG CONSOLIDATED MINING COMPANY, 113 and 115 Broadway, New York, May 19, 1879.—The Board of Directors have this day declared a dividend of $100,000 (one hundred thousand dollars), being fifty cents per share (par value $100) on the capital stock of this company, out of the net earnings for the month of May, 1879, payable at the office of the Company on and after June 7th.

Transfer-books will close on the 31st of May and reopen on the 10th of June.

GEORGE C. LYMAN, Secretary.

This is the first monthly dividend of $100,000 made by the New York corporation, but the sixth monthly dividend of $100,000 paid by this company since the consolidation of the different mines now owned by the company.

OFFICE LEADVILLE MINING COMPANY,
NO. 57 BROADWAY.
NEW YORK, May 15, 1879.

DIVIDEND NO. 3.

The Board of Trustees have this day declared a dividend of ONE PER CENT (10 cents per share) on the capital stock of this company ($2,000,000), out of the net earnings, payable at the office of the company on and after June 7th, 1879. Transfer books will close on May 31st, and reopen June 10th. J. S LOCKWOOD, Secretary.

NOTICE.

RICHARD P. ROTHWELL, MINING ENGINEER and Managing Editor of the ENGINEERING AND MINING JOURNAL, is now making an extended tour through the Mining Regions of the West, including Montana. Until about the 25th of May, his address will be the Walker House, Salt Lake City; but parties desiring his professional services can obtain information at this office, and be put in communication with him by telegraph at any time.

PROF. J. S. NEWBERRY, OF THE SCHOOL of Mines, Columbia College, will visit the mining districts of Colorado, Utah, Nevada, Arizona, and New Mexico during the summer, and will examine mines and mining claims for parties owning or seeking investments in mining property. Address, to June 1st, Columbia College, New York.

FINANCIAL.

W. W. HANLY & CO., BANKERS AND BROKERS, 60 Broadway, New York,
Buy and sell mining stocks on commission on New York Mining Stock Exchange, and offer superior facilities on San Francisco Exchanges through agency of the Bank of California.

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GREEN MOUNTAIN MINING COMPANY OF CALIFORNIA.

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National Quartz Mining Co. of California.
Business and Transfer Agency of Company,
54 Broad Street, N. Y., Room 8.
Sole Agents for Sale of Stock, **L. P. BAYNE & CO.**
54 Broad Street, N. Y., Room 8.

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ASHTON & DOYLE,
Dealers in Gold and Silver Mines and Valuable
MINERAL PROPERTIES,
solicit correspondence for sale or purchase.
161 Broadway, New York.

MEETINGS.

NOTICE.—TO THE STOCKHOLDERS OF THE SCIENTIFIC PUBLISHING COMPANY: The Annual Meeting of the Stockholders of this Company for election of Trustees, and for the transaction of other business, will be held at the company's office, 27 Park Place, New York, May 28th.
HENRY M. GEER, Secretary.

To Advertisers.

The ENGINEERING AND MINING JOURNAL has many times the circulation of any other journal of its class in America.
It has the best and most influential circulation of any technical paper in this country.
It has a very large foreign circulation, having subscribers in every civilized country in the world.
Its advertising rates, considering the class and extent of its circulation, are very moderate; and, as they are *the same for all*, none of its patrons are unfairly taxed for the benefit of others.

TEKNISK TIDSKRIFT,
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Cliff Copper Mine
FOR SALE!
THE PROPERTY KNOWN AS THE
CLIFF MINE,
situated in the very center of the Copper-bearing Mineral Range of Keweenaw Point, on Lake Superior, comprising all the
BUILDINGS AND MACHINERY
on said mine, and about
3500 ACRES OF LAND,
on which is the famous "Cliff Vein," is now offered for sale.

The property has a frontage on the Lake Shore of more than two miles, on which are known to be many veins and belts of rock-carrying copper still unexplored, and which future work may prove to be of much value. A large quantity of wood is yet standing, suitable for mine purposes and for fuel.
The machinery—pumping and hoisting engines and stamp mill—is all in good condition.
The mine is opened to the two hundred (200) fathom level, which is connected by a perpendicular shaft with the surface. This level extends about fifteen hundred feet in its opening, from the shaft, and with the exception of forty tons of heavy copper taken from one point, the vein for this length is undisturbed, and no stoping has been done in the back, which must contain considerable heavy copper, from the exposure of mineral in the winzes sunk while opening the ground.
For two years past the mine has been worked by tribute, from the 190 to the surface, by a force of from twenty to forty men, who have made good wages for themselves, and produced satisfactorily for the mine.
The belts of rock that have been so successfully worked in the Central mine, and which are still so profitably productive, have never been mined in the Cliff; but can be easily opened from the levels and shafts of that mine—the territory offered for sale comprising within its boundaries the same geological belts.
☞ For further information, apply to
O. A. FARWELL,
AT THE MINE, or
M. H. SIMPSON,
7½ BEACON STREET, BOSTON.

$10,000 WANTED ON FIRST MORTGAGE on mining property (over 1000 acres with mill, houses, etc.) in North Carolina, at eight per cent interest, or would give one fifth interest in property for above amount; property cost $50,000. Address S., P. O. Box 2428, Philadelphia.

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